

PC TODAY

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It's About To Get
Much, Much *Faster* (p.34)



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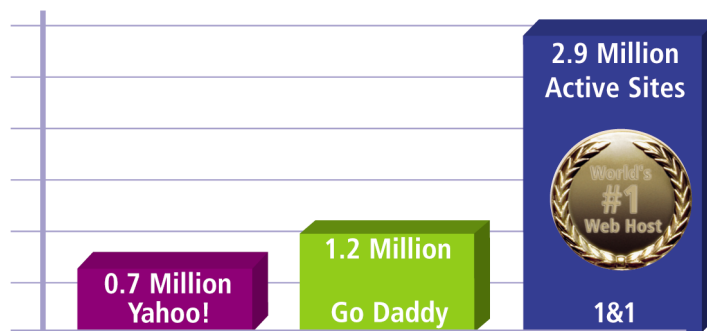
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Source: Netcraft Ltd – www.netcraft.com April 1, 2006

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Web Statistics	✓	✓	✓
Chat Channels	✓	—	✓
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Search Engine Tools	✓	Extra Charge Applies	\$29.95/year additional
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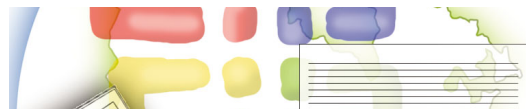
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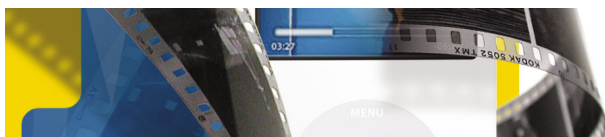
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We've Got Your Numbers

That's two as in "two for the price of . . ." er, two. Microsoft will make Windows Vista and Office 2007 available around the same time, and chairman Bill Gates hopes businesses will purchase both at once. SOURCE: JUPITERRESEARCH

20

The maximum number of **U.S. airports** expected to implement programs this summer for speeding up security checkpoints.

SOURCE: WALL STREET JOURNAL

The approximate number of Compaq and HP **notebook batteries** (including 4,100 in the United States) that HP recalled in April. (bpr.hpordercenter.com/ebpr)

SOURCE: REUTERS

15,700

Microsoft chairman **Bill Gates** uses three screens with his main office computer to help manage his projects and email correspondence.

SOURCE: FORTUNE

Three in five corporations surveyed have delayed rolling out smartphones to employees due to fears about mobile virus infections.

SOURCE: ECONOMIST INTELLIGENCE UNIT

After using a **search engine**, people tend to look at no more than three pages worth of results before finding what they need or giving up.

SOURCE: BBC NEWS & JUPITERRESEARCH

That's also two as in "twice as much," as the number of Web logs (or blogs) doubles every six months, with 75,000 new blogs appearing each day.

SOURCE: TECHNORATI

407

The number of **U.S.** counties lacking wireless 911 service as of December 2005.

SOURCE: NATIONAL EMERGENCY NUMBER ASSOCIATION

The percentage of Japanese, South Korean, and urban Chinese households with mobile phones; by contrast, roughly 72% of U.S. homes have mobile phones. SOURCE: IIP305

The number of gigabytes (yes, gigabytes) worth of storage you get with Kanguru Solutions' new **Flash Drive Max** 64GB. But it'll cost you \$2,799.95.

SOURCE: KANGURU SOLUTIONS

10

The number of frequently dialed phone numbers an Alltel customer using the **My Circle** program can designate as free and unlimited for wireless calling.

SOURCE: ASSOCIATED PRESS

The percentage of Americans who admit to being criticized or stared at for using their cell phones in public.

SOURCE: PEW INTERNET & AMERICAN LIFE PROJECT

8

15,750,000 The number of unique visitors to Yahoo! Travel (travel.yahoo.com) in February 2006.

SOURCE: COMSCORE NETWORKS



Noteworthy

by Calvin Clinchard and Marty Sems

Around The World



More Wireless In The Great North

Aliant, a Bell Canada subsidiary, recently announced plans to act as a key player in providing ever-widening Wi-Fi service for Canadian businesses. Aliant has a heavy presence in the Eastern Canada provinces

and provides service to 19 hotels in Atlantic Canada.

SOURCE: WI-FI PLANET

Mobiles In The Tube

One year after London Underground announced the possibility of allowing mobile phone services to operate within its trains and stations, and months after the July 7, 2005, terrorist bombings, the idea is back. Following a feasibility study, the technology could get a trial run by the end of 2007.

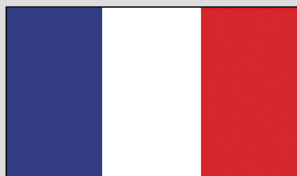
SOURCE: VNUNET.COM



In-Flight Cellular On Air France

Early next year, Air France will begin using the first aircraft, an Airbus A318, to be equipped with OnAir's GSM (Global System for Mobile Communications) system for onboard mobile phone connectivity.

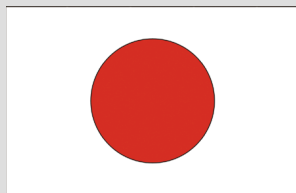
SOURCE: CELLULAR-NEWS



Face Recognition In A Phone

Vodafone K.K. announced a new 3G mobile phone, the Sharp Vodafone 9045H, that comes with face-recognition software. Once a user's face is registered, the phone is capable of recognizing that user for authentication purposes.

SOURCE: JCN NEWSWIRE

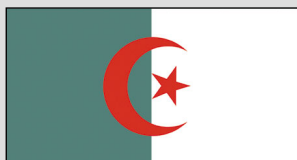


WiMAX In Algeria

Thanks to a WiMAX wireless broadband deployment by Smart Link Communications, Algeria is reportedly the first country in the Arab world to experiment with the new technology, making VoIP (Voice over Internet

Protocol, or Internet phone) service possible in the mountainous nation.

SOURCE: CELLULAR-NEWS



Unusual Mobile News

Lovely Plumage

Three gang members have been tagged and released back into the wild in California. As part of their parole conditions, the trio has to wear GPS ankle bracelets to keep them from visiting off-limits areas in San Bernardino.

SOURCE: REUTERS

Catch Me If You . . . Whoops

A teenaged girl in Buffalo, N.Y., admitted to making more than 1,000 fake emergency calls to 911. The youth taunted authorities, saying, "You can't catch me," perhaps not realizing how traceable her cell number was.

SOURCE: ASSOCIATED PRESS

So Worth It

Emergency vehicles use devices that change red traffic lights to green, but they're not meant for the general public. For two years, a Colorado man used one he bought on eBay for \$100 before being caught. His fine: \$50.

SOURCE: ASSOCIATED PRESS

Romeo Is Filming

He's been Dracula, Beethoven, even Sid Vicious. Now actor Gary Oldman is a filmmaker. He's making a short documentary for download on Nokia's site using the new N93 camera phone.

SOURCE: NOKIA

Standing Room Only

Struggling airlines need to pack in the passengers these days, so Airbus is trying to convince Asian airlines to sell "standing seats" on short flights. Budget passengers would be strapped to padded backboards.

SOURCE: NEW YORK TIMES

The Hot Spot

Your Guide To Wi-Fi



Christian Perry is a long-time contributor to Smart Computing magazine and its sister publications, the Smart Computing Learning Series (no longer in print), and the Smart Computing Reference Series. Please send your feedback to christian@pctoday.com.

SF Chooses Google, EarthLink For Wi-Fi

San Francisco's rumored plans to enlist Google to provide citywide Wi-Fi became reality when the city announced that the search giant and EarthLink will team to create the wireless network this year.

Google will provide free access through an ad-supported service, while EarthLink will likely charge about \$20 for higher-speed access. The companies will share the cost of building the estimated \$15 million network, which includes lease space to install access points on city property.

"San Francisco is one of the most progressive cities in the world, and our combined offerings with Google, Motorola, and Tropos Networks will stretch the possibilities of what a mobile network can do for residents, businesses, municipal government, and visitors," said Donald Berryman, EarthLink executive vice president, in a statement.

According to the proposal, the free Google service will deliver 300Kbps downstream and upstream, while EarthLink's premium service will offer 1Mbps downstream and upstream. There will also be a T1 alternative at 1.5Mbps or 3Mbps that reportedly will cost 50% less than the land-line rate.

The network will operate through signals that are sent from a backbone site to aggregation towers, which use Motorola Canopy radios to deliver data traffic to Tropos mesh Wi-Fi nodes located on city light poles. From there, users can access those nodes with industry standard Wi-Fi equipment using the 802.11b/g protocols. Plans are also in the works to upgrade the equipment to 802.11n technology when stable, draft-specification equipment is available.

The proposal from Google and EarthLink was chosen over proposals from MetroFi, Communication Bridge Global, NextWLAN, Razor-tooth Communications, and SF Metro Connect, a group that includes Cisco Systems and IBM Corp. According to reports, MetroFi, which recently won the Portland, Ore., bid and provides service in Sunnyvale, Santa Clara, and Cupertino, came in a close second.

For those of you residing in or planning to visit San Francisco, don't fire up your wireless network cards just yet. Negotiations must now address concerns such as security, costs, and privacy, a process that could take months and even spoil the deal if the involved parties can't work through potential snags.

Although San Francisco's network might not be quite as large as planned networks

in other cities (such as Philadelphia), it should nonetheless be the largest free network, which sets a positive precedent for other major cities looking to go wireless. Of course, many Google employees live in the San Francisco region, so while rumors persist that Google is looking to create similar free networks in other parts of the nation, Google's claims that it plans on creating only the San Francisco network might indeed be accurate.

However, the *Wall Street Journal* reported that Google and EarthLink are already planning to offer a proposal to blanket another city with Wi-Fi, though that network could primarily offer only paid access. EarthLink Chief Executive Garry Betty has spoken vaguely about upcoming plans for EarthLink and Google, but company representatives haven't confirmed anything as of press time.

Portland Picks MetroFi

The city of Portland, Ore., announced it selected MetroFi to build and operate its citywide Wi-Fi network. MetroFi beat competitors EarthLink and VeriLAN by submitting a proposal that "excelled in demonstrated operational experience and its level of public benefit," according to the city.

Portland, which boasts a population of 540,000 and covers 134 square miles, will

receive both free and paid wireless services, similar to the plan in place for other cities, such as San Francisco. The free access will feature advertising from local and national advertisers, while the premium plan will be ad-free and cost about \$20 per month. The advertising in the free network will appear in banners or text advertisements in users' browsers.

Where To Stay For Wi-Fi

For regular business travelers, Wi-Fi service in hotel rooms isn't just a perk, it's a growing necessity. Despite this need for fast, reliable, and affordable (if not free) wireless connections, hotels still differ wildly in their Wi-Fi offerings, as shown in HotelChatter's (www.hotelchatter.com) 2006 Best Wi-Fi Hotels list.

At the top of the list are Kimpton hotels, which include free Wi-Fi in their not-so-cheap guest rooms, and according to HotelChatter, these hotels use separate Wi-Fi networks for their lobbies and the guest rooms, which means you shouldn't have a problem using your wireless connection anywhere in your room—even on the top floors. Also receiving high marks were Omni Hotels, which offer (and actually encourage use of) free Wi-Fi service in their lobbies, even for people in business meetings.

Also on the list are André Balazs properties, boutique hotels found in Los Angeles, New York, and Miami. HotelChatter explains that several of these hotels provide free Wi-Fi in guest rooms, with signals so strong in some locations that guests can also get access in the lobbies and pools. Sunset Tower in Los Angeles and City Club in New York also received high marks thanks to easy-to-use, free in-room Wi-Fi.

For travelers who don't have seam-busting wallets, HotelChatter notes that Holiday Inn Express and Marriot Residence Inn also do decent jobs of providing in-room and lobby Wi-Fi. Additionally, the Sheraton and Hilton hotels were labeled as "promising."

Lincoln Begins Wireless Talks

The city council of Lincoln, Neb., is exploring the initial steps of citywide Wi-Fi, using a working group to sniff out potential options. According to the *Lincoln Journal Star* (journalstar.com), a Nebraska law prohibits local governments from providing Internet service and also prevents public power agencies from providing Internet service until the end of next year. However, the franchise model being used in other cities is certainly a possibility and still grants

the city some power in the direction of future wireless plans.

EVDO Router Emerges

Linksys recently unveiled the WRT54G3G-NA, and if you're wondering if the "3G" in that product name means what you think it means, you're right.

Also called the Wireless-G Router for Mobile Broadband, this device is compatible with mobile broadband data services such as the Sprint Power Vision Network, which uses EVDO (Evolution Data Optimized) cellular wireless technology. To use the service, you'll need a router such as the WRT54G2G-NA, an EVDO access card for your notebook, and a Sprint broadband plan, which ranges from \$40 to \$80 depending on the amount of usage you need.

This Linksys router features an integrated 802.11b/g wireless access point with a detachable antenna, SPI firewall, Internet access restriction, VPN pass-through, and configuration through a connected PC's Web browser. The router is expected to retail at \$199.

EVDO appears poised to satisfy the needs of mobile broadband users, at least until the launch of WiMAX Mobile, which is still a few years away. In addition to Sprint, Verizon Wireless also provides EVDO coverage in certain areas.



Gas, Electricity, Water . . . & Wireless?

How Wireless Is Becoming A Utility



When you move into a new neighborhood, there are certain key essentials. You need a working phone line right away, and electricity to charge your backup Motorola. Even on the first day you'll need running water to clean the dishes. And in many homes, you'll need gas to get the water heater running and for other duties. The local municipality

usually provides these utilities and even puts all of the charges on one handy bill.

Not Just A Metropolitan Thing

For the average PC user, there's a greater need to make an Internet connection as well. With boxes scattered all over the living room, you might need to power up your laptop first before even testing out the water lines. Municipal

wireless is one option for home owners and city residents alike. In larger cities such as Madison, Wis., a metropolis such as San Francisco, Calif., and even smaller towns such as Chaska, Minn., citywide wireless has become the "fifth utility"—an essential and ubiquitous municipal service.

"The criteria for us was that the network would be built at no cost to city taxpayers, and offer a competitively-priced, portable high-speed Internet option," says George Twigg, communications director for Madison. "Anyone can connect, although this will ultimately be a pay service, except for a selection of public interest Web sites for which access will always be free. To make it convenient for residents and visitors alike, several providers will offer packages ranging from hourly to monthly."

Three of the most well-known providers for citywide wireless deployments are Earthlink, MobilePro, and Firetide. These companies typically use a "mesh networking" system, in which wireless access points are linked together across a city. They situate many of the access points on telephone poles and water towers, so that you can go anywhere in the city and use your laptop to connect to the same wireless network.

A Highly Sought Utility

According to a recent JupiterResearch report, wireless access is becoming more and more of a requirement for PC users. It makes sense: As laptops become more powerful, and end users become more and more reliant on the Web and email, the demand for a persistent connection grows. In some cases, citywide wireless is a free public service meant to attract mobile professionals looking for a new home.

An interesting finding as part of the Jupiter report, however, is that a vast majority of citywide wireless deployments are intended for government use (police, fire). Of the 83 municipal wireless networks they surveyed, only a small handful were intended solely for residents and private business. Cities



This Rockford, Ill. deployment includes access point from Firetide that mix into the city décor.

deploy the networks for a mixture of private and public sector use. This further underscores the idea that citywide wireless is becoming the “fifth utility” in that the technology is part of a complete municipal offering.

“Certainly the similarities between wireless and traditional utilities are not hard to see,” says Sarah Kim, spokesperson for the Meru Networks wireless networking company. “In today’s knowledge-driven society, we can easily argue that wireless, like transportation, water, and electricity, provides an essential commodity or service to the public. Similarly, wireless service is often an extension of the private business, but like traditional utilities, will be subject to governmental regulations.”

Of course for many cities, a municipal wireless network has more uses than just connecting home owners to the Web. Tempe, Ariz., for example, installed a wireless network that covers 40 square miles—the farthest reaching city deployment in the United States—and sees

opportunities for many uses, such as Internet-enabled phone and mobile device access. Providers such as Firetide envision a day when municipal networks provide a unified architecture, accessible from highways and back roads alike, that cities can use for security surveillance and important communication between government agencies.

Numerous Options, Numerous Limitations

One technology that will become part of the municipal wireless equation is WiMAX, a more powerful, faster, and far-reaching wireless technology than mesh networking. One of the major technology companies spearheading WiMAX innovation and development is Intel. The company plans to release the first WiMAX adapter for laptops sometime this year. Cities that choose WiMAX instead of mesh networking could install fewer access points across the city yet achieve

the same widespread coverage.

For cities such as Tempe, however, a citywide network could use multiple technologies as a way to help residents, businesses, and government access the Internet. In fact today, the Internet provider for the city, MobilePro, offers a PC card for your laptop that works with both the city mesh network and the EVDO (evolution data optimized) cellular network. In some cities with free municipal wireless networks, such as Madison, there are also private hotspots in coffee shops and restaurants. In this way, municipal wireless sometimes functions as a complement to existing public hotspots or high-speed cellular networks

That’s part of the controversy when it comes to municipal wireless, however. According to JupiterResearch, most deployments cost about \$150,000 per square mile over a five-year period. The company explains that about half of the cities deploying municipal networks won’t break even, even if they charge residents about \$25 per month.

NEWSBRIEF

Hang Up On The Federal Excise Tax

The Federal Excise Tax was imposed in 1898 to help pay for the Spanish-American war. Though the war lasted only a few months, the tax stuck around 108 years! That may be about to change, though. At last count nine federal appeals courts declared the tax, which charges wireless users 3% of their monthly bill, illegal. Wireless consumers can currently fill out paperwork with the IRS to get a refund for up to 36 months worth of previous taxes.

by Sam Evans

NEWSBRIEF

Flip-Style Wi-Fi Phone

D-Link recently announced the new DPH-540, the first flip-style Wi-Fi mobile phone featuring a compact, clamshell design. Weighing a scant 3.74 ounces, the phone ships with the TelTel softphone, which allows users to make free calls anywhere in the world from any hotspot.

The DPH-540 uses the PsipTN (Public SIP Telephone Network), which supports compatible hardware to deliver voice, media, and other services. SIP (Session Initiation Protocol) is an application-layer control protocol that enables traditional calling features over IP networks.

The phone is scheduled to ship this summer and will carry a MSRP of less than \$300.

by Christian Perry

Also, cellular access is far more ubiquitous than Wi-Fi hotspots or mesh networks. EVDO and CDMA (Code Division Multiple Access) service will become even more widely available in the coming years. One look at a Cingular or Verizon Wireless coverage map and you'll see just how prevalent these networks have become. These provide an attractive alternative in cities such as Seattle, Wash. or Philadelphia, Pa.—you can't travel too far from their downtown Wi-Fi networks before you lose the high-speed connection.

Another issue with municipal wireless is that the approach is intended as a widespread offering but doesn't match the speed of wired broadband in the home or even high-speed cellular. Coverage is more important than fast access. Many citywide networks run at only 1Mbps, while broadband speeds typically run about 3Mbps, and EVDO can clock in with throughput over 5Mbps in large cities such as Minneapolis.

Many cities use a phased approach to citywide coverage. Madison has limited its free access to the downtown area and will slowly expand to outlying areas. This can strongly affect consumer perspective: Imagine an electrical or sewer network that only covers a bustling downtown area while the rural residents are stuck in the dark ages. The city is aware of these perceptions of course, and seems to view wireless access as a proof-of-concept, not quite the "fifth utility" that it could eventually become. City officials in Madison cite several other key issues with municipal wireless, such as competition from other networks, the physical detriments of pushing a signal into low-lying areas and hilly regions, and an unproven business model and ROI.

Coming To A Community Near You

Yet, municipal wireless is gaining momentum. MobilePro has announced eight new cities that will deploy a mesh network system in the coming year, and EarthLink just recently partnered with Google to cover San Francisco in Wi-Fi by 2007.

Muni Wireless (www.muniwireless.com) announces new municipal wireless initiatives almost daily for small towns in the Midwest, downtown districts on the east coast, and high-profile deployments such as Philadelphia's, which was originally postponed due to red tape.

The main reason municipal wireless is becoming more common: mobile users are now more common. Cities are motivated to make sure the high-tech users in the community have what they need to live comfortably and to work

productively, even if it means losing money on the proposition. They are debating a pressing issue: If residents can easily access their email and the Web over a widespread connection, as opposed to relying on a wired connection in the city, they are more likely to stay put. This, more than any other aspect, is what makes municipal wireless such a hot topic. It's a technology that will only become more common, even if you live in a remote corner of Wisconsin.

by John Brandon

NEWGEAR



Thin Q

Motorola is taking thin to another level with the new Motorola Q (price TBD; www.motorola.com) smartphone, which is just 11.5mm thick. We saw the Q at CES in January and were quite impressed by its slender and lightweight design. The Q uses CDMA technology, which means it will likely be sold by Sprint Nextel or Verizon Wireless in the U.S. This smartphone runs Windows Mobile 5.0 and has a full QWERTY keyboard, along with a 1.3MP camera and a miniSD expansion slot.

by Jennifer Johnson

NEWGEAR

A Very Smart Phone

So what do you want from a phone? Wi-Fi access to email, Web browsing, and IM? OK. A 1.3-megapixel camera for still pics and video? Done. MP3 playback with hotkeys to your favorite songs? Sure. You're talking about T-Mobile's SDA (\$299; www.t-mobile.com). This smartphone supports EDGE, GPRS, and Bluetooth, and runs Windows Mobile 5.0. A Mini SD card slot adds storage space, while Microsoft Outlook Mobile keeps you in touch with your calendar and contacts list.

by Marty Sems

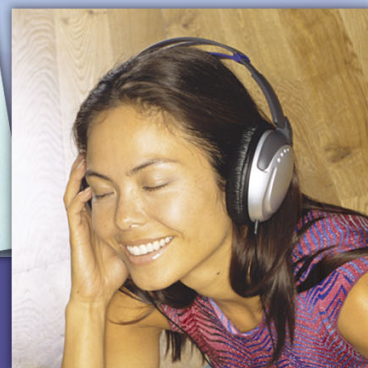


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Better, Stronger, Faster

But The Intel-Powered BlackBerry Won't Set You Back Six Million Dollars



the best features of both together in one unit. It has a slim, longer, candy bar-like design (closer to that of the 7100 series), so it holds and feels like mobile phones you've probably used in the past. However, rather than using the modified keyboard found on the 7100 series (which required the user to press one key multiple times for different text characters), the 8700c includes a full QWERTY keyboard layout from the later-model brick-style BlackBerrys (such as the 7290). The results are quite lovely: Fully-functional input is now available on a device that doesn't cause your hand to cramp while using it as a phone.

BlackBerry fans were overjoyed when Research In Motion announced the latest in their product line, the BlackBerry 8700c, and with good reason—this latest entry in the mobile communications market definitely makes an impact. With a brand-new design, faster data network, and far more power than any BlackBerry before it, there's a lot to be excited about.

Looks Do Matter . . .

First, there's the design of the unit itself. The new 8700c unifies the two styles used by RIM in the past, bringing

The 8700c's screen is by far the most spectacular RIM has ever offered. The 2.5-inch screen displays at a 320 x 240 pixel resolution with over 65,000 colors. Gone are the days of chunky icons and blocky characters. Viewing Web pages and images is more enjoyable, as text and images are clearer and more defined. Plus, you can change the font type and size under the Settings menu—a feature new to the BlackBerrys. To cap it all off, the 8700c includes a photo sensor that automatically brightens and dims the backlighting of the screen and keyboard according to your environment.

. . . But It's What's Inside That Counts

As nice as the cosmetic features are, what makes the 8700c really stand out is the Intel Xscale CPU's raw processing power. (The 8700c is the first BlackBerry to include an Intel processor.) The 8700c's Xscale runs at a speedy 312MHz, which helps the device run nearly twice as fast as the previous models. The Xscale also enables the BlackBerry to take on some more full-fledged PDA functionality.

For instance, the new 8700c not only supports Microsoft PowerPoint presentations, but it also displays Excel files in a true spreadsheet format (rather than as plain text). You can also rotate and zoom in on JPEG images, so you can actually view high-resolution pictures at full quality. After zooming in, you can use the Enhance function to recalibrate the image to reduce pixilation—a feature found only on the 8700c.

Also present are the familiar calendar, memo pad, address book, and task list applications. All of these have received a major overhaul thanks to the new Java-based application architecture used by the 8700c, and each runs noticeably faster on the new Intel processor. Combined with the improved 64MB



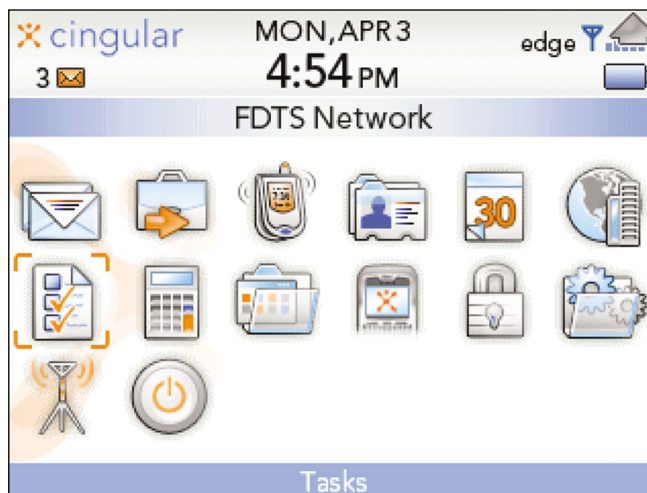
The 8700c blends the comfort of the "candy bar" style BlackBerrys, the functionality of the "brick" style BlackBerrys, and the power of the Intel Xscale processor.

onboard flash and 16MB SDRAM memory, the BlackBerry has finally become a consideration for mobile professionals looking for true PDA functionality in a connected device. One downside: The 8700c won't run applications designed for older BlackBerrys, so alternative instant messaging and other productivity-enhancing applications you're used to using will have to wait for Intel support.

Thanks to the new Class 10 EDGE modem, the Intel-based 8700c excels at Internet-based tasks. Web browsing is dramatically faster, boasting speeds between 75 and 95Kbps, close to four times faster than older devices running on GSM and Verizon's 1X networks. Emails and PIN messages fly into the inbox, arriving less than two seconds after hitting the Send button in our tests. Messages with large attachments came to the device far faster than previous models. In our tests, a 2MB Excel spreadsheet arrived on the 8700c in about 15 seconds, and thanks to the cranked-up processor speed, opened without much delay (about five seconds). Applications install seamlessly and speedily over the air, and SMS text messages deliver without any hiccups or hitches. Even though the 8700c lacks any sort of camera, you can still send MMS (Multimedia Messaging Service) messages over the air with pictures or media stored on the device.

You Can't Always Get What You Want

One noticeable thing missing from the 8700c is the minimal Bluetooth support. With the new, high-horsepower processor, one would think that RIM would include support for other Bluetooth devices such as keyboards or, at the very least, wireless synchronization with a PC or notebook. But alas, this device follows in the steps of other Bluetooth-enabled BlackBerrys in that it only supports Bluetooth headsets and car kits.



The new user interface on the BlackBerry 8700c is vibrant and incredibly easy to use.

We definitely recommend a headset (either Bluetooth or wired) when using the BlackBerry as a phone.

Overall, the new 8700c makes an impressive showing. On-screen activity nearly jumps out at you, thanks to the improved screen and much-heightened speed of the device. This newest

BlackBerry was extremely easy and fun to use. If you're looking for a huge increase in speed, power, and quality from your current BlackBerry, don't hesitate to upgrade now.

by Joe Peacock

As far as the phone aspects of the new Intel-powered BlackBerry go, the quality was on par with previous models. The earpiece and integrated speakerphone are plenty loud and somewhat clear, but the microphone on the handheld left a lot to be desired.

The State Of RIM (Research In Motion)

As we all know, the BlackBerry has long been the communication device of choice among today's mobile professionals. However, RIM's industry dominance has taken a direct hit over the past year with the long and messy patent lawsuit filed by NTP. RIM settled the case in March by agreeing to pay \$612.5 million to patent-holder NTP which finally put the case behind them. The figure is quite a large one but does nothing to describe the actual impact the lawsuit had.

The threat of a network shutdown sent nervous BlackBerry customers scrambling for an alternative solution and deterred new customers from taking the BlackBerry plunge. The spotlight instead has been placed on the Treo 650 and 700w models, and some have opted to wait for the new Motorola Q-phone, the much-anticipated smartphone.

The uncertainty with RIM has also been evident with investors. In the past 18 months, RIM shares fell near or

below \$60 a share three times and topped \$80 a share five times, with analyst projections ranging wildly between "must buy" and "sell now."

But now that the lawsuit is out of the way, RIM has committed publicly to regain its sales momentum. The pent-up demand for the device has definitely come into light, with sales of the new BlackBerry 8700c sloping upwards since the settlement. Knowing that the network is no longer under threat of shutdown has definitely eased consumer fears; however, increased consumer knowledge of alternatives to the BlackBerry has brought to bear something RIM hasn't previously endured: competition. One thing is for sure: Over the past year, the 800 pound gorilla of the mobile messaging market has definitely trimmed down a bit. Can the next few months of rigorous marketing routines and hardware upgrades help re-establish dominance? Only time will tell. But we can only benefit from the attempts.

Organization In The Palm Of Your Hand

HP's iPAQ rx1950 Packs A Lot Of Features Into A Small Package

HP iPAQ rx1950
\$299 • www.hp.com

Think for a moment about what you were doing 10 years ago. Maybe you were in college or making a career move. Regardless, one thing is certain: You weren't holding a computer in the palm of your hand. Instead you may recall the excitement that accompanied Intel's announcement of the new Pentium Pro processor for desktops. Times have certainly changed. This is evident in the current model of computers we can hold in our hands that operate at almost double the speed of computers from 1996.

Even today's entry-level PDAs pack more power than computers from years past. For example, the HP iPAQ rx1950 has a 300MHz Samsung processor and 96MB of memory (64MB of ROM and 32MB of SDRAM [synchronous dynamic RAM]). These features and many more fit into a nice, compact body that is only 4.47 x 2.78 x 0.5 inches (HxWxD) and weighs just 4.4 ounces. What's more, at just under \$300 the rx1950 costs much less than the average computers a decade ago.

Productivity Is Key, But Entertainment Takes Center Stage

Although you may quickly notice the rx1950's compact size, it's the Windows Mobile 5.0 operating system you see when you turn the device on that may interest you more. Microsoft claims its Windows Mobile 5.0 uses a PDA's memory and processing power more efficiently than previous



The HP iPAQ rx1950 has integrated Wi-Fi.

operating systems, resulting in longer battery life.

For navigation, the rx1950 has four programmable quick launch buttons located below the screen with a five-way navigation button sandwiched in the middle. Along the left spine of the device, you'll find a notes button for text and voice note recording.

By default the home screen of the rx1950 defaults to the iPAQ Entertainment menu, which includes links to

Music, Internet, Games, and Photos. If you intend to use this PDA primarily for organizational purposes, use the Settings menu to change the default home screen to display your calendar, emails, and tasks.

Even though the navigation buttons provide easy access to many of the items you'll use regularly, a stylus is your primary entry device. For the most part, the stylus is comfortable and easy to use. I did find a few instances in which the rx1950 didn't respond to stylus taps, especially when clicking buttons near the edges of the display. For the most part, however, the stylus worked well.

What's Best & What's Missing

One of the best features of the rx1950 is integrated Wi-Fi functionality. This lets you connect to a nearby hotspot to check email and surf the Web. In close second for best feature is the brilliant TFT (thin film transistor) QVGA (Quarter Video Graphics Array) color screen. In comparison to a previous generation HP iPAQs, the rx1950 has a brighter display.

On the flip side, the feature that is most obviously missing from the rx1950 is Bluetooth. Although some users may not notice the lack of this technology, not having it will limit a PDA's expandability. For instance, without Bluetooth you won't be able to connect to some third-party GPS receivers and use your PDA as a handheld navigation device. Nor will you be able to use some wireless external keyboards to expand your input options.

Put It All Together

Despite the lack of Bluetooth, the rx1950 really has a lot going for it. I love the integrated Wi-Fi and the PDA's small size. Although 96MB of memory may seem lean, it's enough to get the job done, and you can always add extra memory using the SD expansion slot. As a whole I like the HP iPAQ rx1950 and would recommend it to anyone looking for an entry-level, sub-\$300 Windows Mobile device.

by Jennifer Johnson

Skype In Your Pocket

VoIP For Your Pocket PC

Now that some PDA models have Wi-Fi capability, you can shed your notebook even for just a little while and still stay in touch with your clients. If you conduct business from your mobile or home office, communications tools that let you continue working while on the go are a necessity. If you are familiar with Skype, a VoIP (Voice over Internet Protocol) and chat application available for your computer, you'll be interested to know Skype is now available for many Pocket PC models. The beauty of taking Skype mobile to your Pocket PC is that you can keep your same Skype name and number.

Skype Prerequisites

Before you head to the Skype site (www.skype.com) and download the latest program version, you should know it won't work on all models of Pocket PC. To check whether your device fits the usage requirements, click the Download menu. Click Skype For to open the Skype For Pocket PC page where you can view an inclusive but growing list of devices that are compatible with Skype. Select your Pocket PC model and click the image of your PDA to open the client download page for the device.

Installation Options

You have two options for downloading Skype to your Pocket PC. You can download Skype For Mobile client to your desktop PC or laptop and then install it on your Pocket PC during your next syncing session. Or you can download the Skype client directly to your Pocket PC and skip syncing altogether. We'll detail each process here.



Download to a computer. The typical method for installing Skype onto your Pocket PC is to first download the Skype For Mobile client to your computer. The next time you sync your computer and Pocket PC, you can install the client software to your device. This method is also ideal because in the event you need to reinstall the executable file on your Pocket PC, you have a copy of the file on your computer. After downloading `Skypeforpocketpc.exe` to your computer, double-click the file and follow the steps in the installation wizard.

Download to your Pocket PC. Downloading the client directly to your Pocket PC may seem attractive, but keep in

mind that your device's wireless connection isn't going to be as zippy as the Internet connection you have on the computer in your home or at the office. After the download completes, open the downloaded file and follow the Skype Setup Wizard to install the program on your Pocket PC. You can then run Skype from the Programs menu.

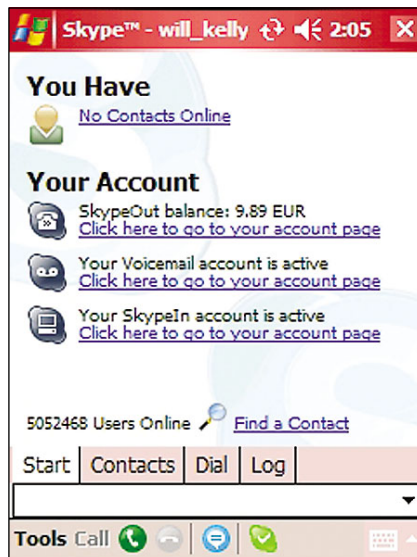
Using Skype

Skype has worked hard to keep the look and feel of its program consistent across Windows, Mac OS X, and Pocket PCs. Therefore if you are already using Skype on one of your PCs, the Skype For Mobile client on your Pocket PC is going

to look familiar. If you are going to use Skype frequently, we suggest purchasing a headset for your Pocket PC if you haven't done so already. That way you can talk to clients or co-workers and perform other tasks at the same time. Look for a headset with earbuds and a microphone; just like the one you should be using with your wireless phone.

To use Skype you need to connect to the Internet, so take your Pocket PC online by accessing a nearby Wi-Fi hotspot. Next tap the Skype icon to open the application. If you are launching Skype for the first time, the Skype End User License Agreement greets you. Read and accept the agreement to proceed.

If you already use Skype on your home or work computer, the nice thing about using it on your Pocket PC is that you can use your existing Skype name and account information. If your co-workers or clients use Skype frequently, think of the productivity benefits of



having Skype with you when you are away from your desk.

Log in. When you log in to Skype from your Pocket PC you have two options. If you are setting up a new account, select the I Would Like To

The Skype For Mobile user interface should look familiar to longtime Skype users. New Skype users will find all the features easily accessible.

Create A New Skype Account radio button. Then you can set up a full Skype account including optional SkypeOut and SkypeIn services. Otherwise choose the I Already Have A Skype Account radio button and type your Skype name and password into the appropriate fields. Tap OK to log in. You can also select the Sign In Automatically On Start checkbox to log in to Skype automatically when you power up your device; however you must have Wi-Fi enabled and be in the vicinity of a Wi-Fi hotspot.

Add contacts. Skype stores your contacts online, so you have full access to this information whether you log in to your account from your Pocket PC or your home computer. However if you need to add a Skype contact while using your Pocket PC, open the Tools menu, choose Add A Contact, and the Add A Contact window opens. Enter the new contact's Skype name or telephone number in the field. Optionally you can select the Allow This User To See When You Are Online checkbox. This option makes you available (when you are

Sign Up For Skype Service

If you haven't used Skype previously, you need to sign up for an account. The free Skype account enables you to call other Skype users anywhere in the world.

After installing the Skype application on your computer or Pocket PC, go to the Skype login screen and set up a new account. You should also consider downloading a client compatible with your primary computer first so you can familiarize yourself with Skype on that computer. Otherwise go ahead and download a Skype installer compatible with your Pocket PC.

Making calls to and receiving calls from wireless and landline phones requires fee-based SkypeIn and SkypeOut accounts.

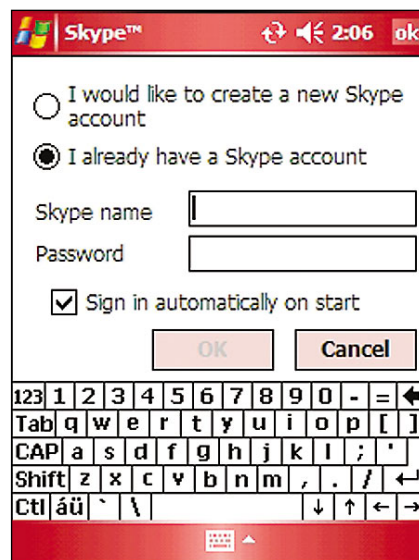
SkypeOut enables you to call wireless and landline phones using Skype, just like you are using a regular phone. Think of SkypeOut as a telephone calling card.

SkypeIn provides you with a phone number that callers using a landline or

wireless phone can use to contact you. It also includes free Skype Voice Mail which functions just like your regular phone's voicemail and is useful for times when you are offline and don't want to miss that important client call.

Signing up for SkypeOut or SkypeIn doesn't require you to sign up for a long-term contract like what may be necessary with your wireless phone company, but you still need to sign up for accounts. We recommend keeping a balance on your SkypeOut account for when you take Skype mobile on your Pocket PC, that way you won't run out of calling minutes during a call to a client or friend.

Click the SkypeOut link on the Skype home page to go to the Skype Products page. Here you can sign up for SkypeOut and SkypeIn. If you want to have the ability to call anyone who doesn't have Skype, you should consider using SkypeOut and SkypeIn.



Skype lets you use your existing Skype account on your Pocket PC, which means you won't miss a call or chat session with a friend, colleague, or client.

Best Mobile Web Sites For Air Travel

As more and more people purchase high-speed data plans for their cell phones and smartphones and Wi-Fi hotspots become increasingly common in airports and hotels, it's easier than ever to stay connected to the Internet. Pull up some of our favorite mobile air travel sites during your next trip.

American Airlines

aa.flightlookup.com/omnisky

Track American Airlines flights, look up gate information, and view phone numbers for various departments.

Continental Airlines

pda.continental.com/PocketPC

View flight status, search for flights, and view reservations on Continental's mobile site.

Delta Air Lines

mobile.delta.com

Search flight status and schedules and view itineraries for Delta Airlines.

FAA

www.faa.gov/wireless/airlines.cfm

The FAA provides phone numbers and Web addresses for many popular airlines.

MapQuest

wap.mapquest.com

Use this popular mapping service to get maps or driving directions.

Northwest Airlines

wireless.nwa.com

Check fares and availability, view or change reservations, and look up contact information for Northwest Airlines.

Seat Guru

mobile.seatguru.com

Look for the best seat on the plane for numerous airlines.

Southwest

mobile.southwest.com

Southwest's mobile site lets you check in for your flight, cancel boarding passes, and more.

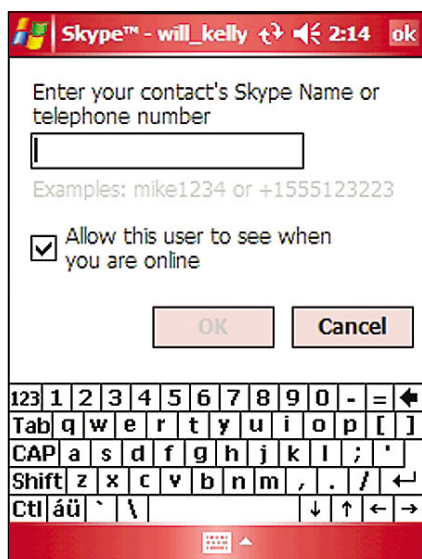
United Airlines

ua2go.com/htm/index.htm

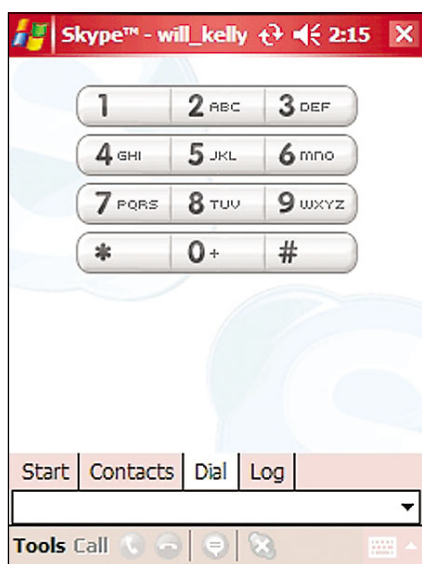
Use this site to track your mileage rewards, book flights, and view itineraries.

by Jennifer Johnson

Using your Skype Contact list is by far the easiest way to make a Skype call from your Pocket PC.



The Skype Contact list is a valuable productivity tool when going mobile with Skype on your Pocket PC.



If you need to use the Skype dial pad, you need to dig out your stylus to make a new call or enter new contact information. Otherwise, always remember to place new Skype contacts in your Contact list.

online) to your contact from his Contact list. Tap OK to add the new contact to your Skype Contact list.

Make a call. Using your Skype Contact list is by far the easiest way to make a Skype call from your Pocket PC. When you are online, log in to Skype and tap the Contacts tab to bring up your Skype Contacts list. Select the contact you

want to call and tap the green Call button. Optionally, if for some reason the person you want to call isn't on your Skype contact list, tap the Dial tab to bring up a dial pad. Use the pad to "dial" the person's phone number and then tap the Call button. Typically you would use this option with SkypeOut to call non-Skype users on their landline or wireless telephones.

Chat with other users. Skype made perhaps the first serious entrée into melding instant messaging and VoIP in one application. This combination of communications tools enables you to switch between communications mediums, quite a boon to geographically disparate project teams collaborating on projects. Tap the Contacts tab to open your Skype Contacts list. Choose the contact for your chat session and tap the Chat button to open a chat session with the selected contact. Type your message in the input field and tap the Return button to send the message. To close the chat session, tap and hold down the Message tab and choose Close Tab. You will return to your Skype Contact list

Take Skype Along For The Ride

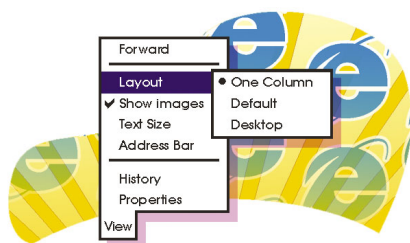
Taking Skype along with you on your Pocket PC means clients and friends can contact you whether you are sitting in your home office at your PC or accessing your hotel's Wi-Fi hotspot. *by Will Kelly*

Major Surfing

Put The Whole World Wide Web In Your Hand With Windows Mobile

Free public Wi-Fi connections are appearing in more places other than the nearest coffee house. If you have a Pocket PC smartphone, which lets you connect to the Internet through your mobile service provider, launch Internet Explorer and browse away. The following steps apply to Windows Mobile 2003; Windows Mobile 5.0 users should find them generally applicable but may encounter some differences.

by Meryl K. Evans

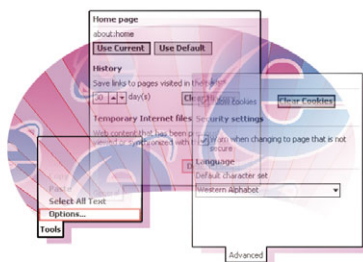


Enhance Your Visual Experience

The View menu lets you make changes to your preferences. For instance, you can turn off images to speed up your browsing experience. Just tap Show Images. When images are off, a small broken-image icon appears.

The Text Size options let you resize the text on a Web page. Display provides three ways you can view the Web pages: One Column, in which content appears in one column so you won't have to scroll sideways often; Default, which lays out the page as it would appear on a desktop PC, except that items are smaller and content is rearranged to reduce scrolling; and Desktop, which lays out items exactly the same as a desktop PC.

Tap Address Bar to hide or show the URL address bar. Tap History to view a list of the recent Web pages you've visited. Properties gives basic information about the current Web page you're on, including document type, size, whether the page is encrypted, and the URL.

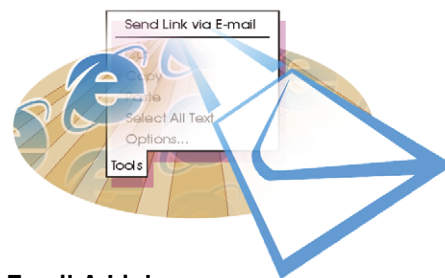


Web Browsing & Security Options

Tap Tools to access the General, Memory, and Security tabs. On the General tab, you can set your home page. The Memory tab lets you determine how many days of Web browsing history to retain and also gives you the option to clear the History. Tap Delete Files to clear the temporary Internet files.

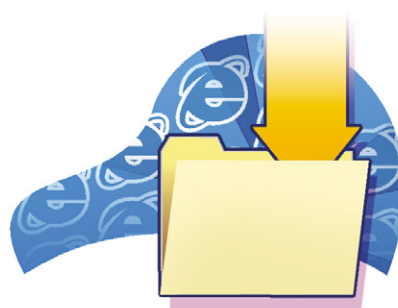
The Security tab lets you set your cookie and security preferences. If you want Web sites to remember your personal data (such as usernames and passwords), then select Allow Cookies. If this option isn't selected, you'll have to re-enter your data every time you visit the Web site. Tapping Clear Cookies erases any existing cookies. Putting a check in the box below Security Settings sends a warning anytime you arrive on a Web page that's not secure. If you don't want the warning, deselect the checkbox.

Another timesaving feature is the Select All Text option in the Tools menu. This feature does exactly what its name implies, making it easier for you to copy and paste Web content into Word documents or email.



Email A Link

You can email a link simply by tapping Tools and Send Link Via E-mail. This opens a new email message containing the link you wish to send. Enter the recipient's email address, subject, and a message (you can enter multiple email addresses by inserting a semicolon [;] between each address), and then click Send.



Downloads Made Easy

To download a file to your Windows mobile device, click the appropriate link and the Download window appears asking if you want to download the file to the My Documents folder. Click OK or click Change to browse to a different folder. Leave the box selected if you want to open the file after downloading.

Go to Programs, File Explorer, and My Documents to find the downloaded file. How you use it depends on the file. If it's a CAB file, select the file to install the application. CAB files are deleted after installation, so if you want to keep a copy, save it to your storage card or Desktop.

NEWGEAR

Listen To The Blues

If you like the freedom that wireless affords, then you won't be blue about Anycom's Blue BSH-100 Bluetooth stereo headset (\$119.99; www.anycom.com). The package includes the stereo headset, power supply, USB charging and audio-streaming cable, and a modular microphone so you can catch calls between jams. I found syncing the headset to the Audio Gateway a bit unintuitive but otherwise it sounded great and was comfortable to wear. The wireless range was about 60 feet, and even a couple walls didn't hamper reception in that range. The pocket-sized Audio Gateway also charges the included second battery to keep you rocking indefinitely.

by Andrew Leibman



NEWGEAR

Easy Docking

Kensington's Portable Universal Docking Station (\$129; us.kensington.com) doesn't require you to buy a new docking station each time you upgrade your PC. The Docking Station connects to just about any Windows XP notebook via USB and includes two USB ports, two PS/2 ports, a 9-pin serial port, a parallel port, and a 10/100 Ethernet port. The Docking Station does include its own power supply, but at least that means it won't draw battery power when you're not plugged into an outlet. The Docking Station measures 1 x 7 x 2.375 inches (HxWxD) and weighs 0.25-pounds making it easy to pack and carry. Although listed at \$129, we found it for around \$90 online.

by Chad Denton



Use Favorites

Save taps by adding favorite or frequently used Web sites to Favorites for quick access. When you visit a Web site that you want to save, tap the yellow star, the Add/Delete tab, and then Add. You can also create a new folder if you want to organize your favorites. From the Add/Delete tab, tap New Folder, enter a name, and then tap Add. Access your new Favorite anytime by tapping the yellow star and then the name of the Web site you wish to visit.



Opera For Windows Mobile

You might want to try out another browser application. Opera (www.opera.com/products/mobile) has released a mobile version of its Web browser for smartphones and Windows Mobile devices. Opera Mini is for phones that are incapable of running a Web browser, which includes most WAP-enabled phones. If you're not sure whether to download Opera Mini or Opera Mobile, check the Opera site to see what services are available for your device. As of this writing, Opera Mobile costs \$29. Opera Mini is currently available for free. Pocket PC users may want to try out Opera Mobile For Windows Mobile, Pocket PC, which is currently in beta testing.

Maintain Connections

Get The Most Out Of Contacts In Palm OS

The following tips demonstrate how to customize your Contacts and import them into Outlook. Take note that some Contacts features aren't available on your Palm device and must be accessed via Palm Desktop. by Meryl K. Evans

Sort Contacts By First Name



You may not remember the last name of someone you need to contact, so sorting by first name can help. Your Palm device only has the capability to sort by last name and company name, but you can use Palm Desktop to sort by first name. Simply navigate to Contacts and select First Name, Last Name from the Sort By drop-down menu.

Third-party software is available if you must have a way to sort by first name or another field. Fast AddressBook (\$14.99; www.antstech.com) can sort your Contacts using several different methods, including by first name. Similar applications you might want to check out include Super Names (\$19.95; www.standalone.com) and TealPhone (\$19.95; www.tealpoint.com). Another option is to look for personal information managers such as Agendus (\$29.95 Standard, \$39.95 Pro; www.iambic.com) and BeyondContacts from DataVIZ (\$29.99; www.dataviz.com), which replace or enhance the original Palm application functionality.



Show Columns In Contacts

You can change the Contacts view on the Palm Desktop to display specific fields. From Palm Desktop, click View and Show Columns. Select and deselect the checkboxes next to the items. You can even change the order in which the columns appear. While in the Show Columns window, select the field you wish to move and repeatedly click the Up or Down arrow until it's where you want the column located.

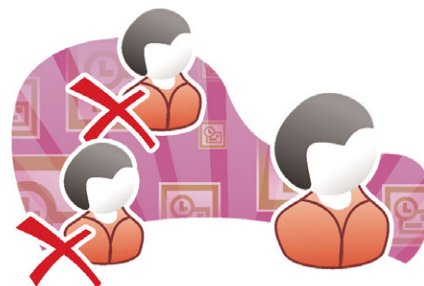
These changes won't be reflected on your Palm device, as it only has enough room to display the name and phone number or email address.



Import Contacts From Outlook

To start, open your Outlook Contacts. Click File, Import And Export, Tab Separated Values (Windows), and then Next. Select Contacts and Next and then enter a file name. Click Next and then Map Custom Fields. In the Map Custom Fields window, drag the value on the left to the field name on the right. Click OK and Finish.

Open Palm Desktop's Contacts window and select File And Import. Change the Files Of Type option to Tab Separated Values and then locate the file you just exported from Outlook. Click the file and then click Import.



Get Rid Of Duplicates

Importing isn't a perfect process, and even if you carefully specify that duplicates are forbidden, they still may occasionally appear. However there's a faster way to get rid of them than simply deleting them manually.

From Outlook, select the Contacts folder and then Phone List from the Current View options in the left pane. Click View, Arrange By, Current View, and Customize Current View. You're on the Customize View: Phone List window. Click Fields and then Modified from the Available Fields list. Click Add.

Modified is selected, so click Move Up until it's at the top of the Show These Fields In This Order list. Click OK twice to return to the Contacts view. Hold the CTRL key while clicking duplicate entries and then press DELETE. You might want to delete them after selecting a few names so that you don't accidentally unselect the items while working your way down the list. After that, you might want to re-sort by name to see if any duplicates remain. Repeat the process as necessary.

Follow similar steps to remove duplicates from your Palm Contacts. View them in alphabetical order, hold the CTRL key and select the duplicates, and then press DELETE. If you're looking for a third-party utility that can remove duplicates from all your Palm applications, check out Undupe (\$9.95; www.stevenscreek.com).



Use Outlook To Import Palm Contacts

If you don't want to set up Hotsync to sync with Outlook, you can still get your data into Outlook by following a process similar to the previous tip. In Palm Desktop click File and Export and then enter a file name. Change the Export Type to Comma Separated, click the All radio button, and then click Export. Make any necessary changes and then click OK.

Open Outlook and click File, Import And Export, Import From Another Program Or File, and then Next. Select Tab Separated Values (Windows) and click Next. Click Browse and locate the file you saved. Under Options, select your preference for dealing with duplicate items and click Next. Select where you want the imported contacts to go (to Contacts, in most cases). Click Next and Import the file into the folder you've specified.

In the Map Custom Fields window, drag the value on the left to the field name on the right. Click OK and then Finish to complete the process.



Contacts Custom Labels

The first Palms didn't have Web site or instant messaging fields built in to Contacts. Those are included with the latest Palm application, but you may have other fields you wish to add. Open Palm Desktop and click Tools and select Preferences. Enter the names of the fields you wish to add in the pane on the right.

The item next to Select The Primary Contact is what appears in the Primary column. If you want to change it, click the button and select the label. Click OK.

NEWGEAR

Universal Power

It may be the last power adapter/recharger you'll need. The \$39.99 iGo everywhere handles the latest mobile gear with its interchangeable power tips, or connectors, sold separately for about \$9.99 each (www.mobilityelectronics.com). Simply buy the connectors as you need them. The iGo charges devices from a 12-volt DC car jack as well as from an AC hotel room outlet, and its cord retracts into a handy spool for when you're on the go. Finally, you can store your iGo and power tips neatly in an included travel pouch.

by Marty Sems

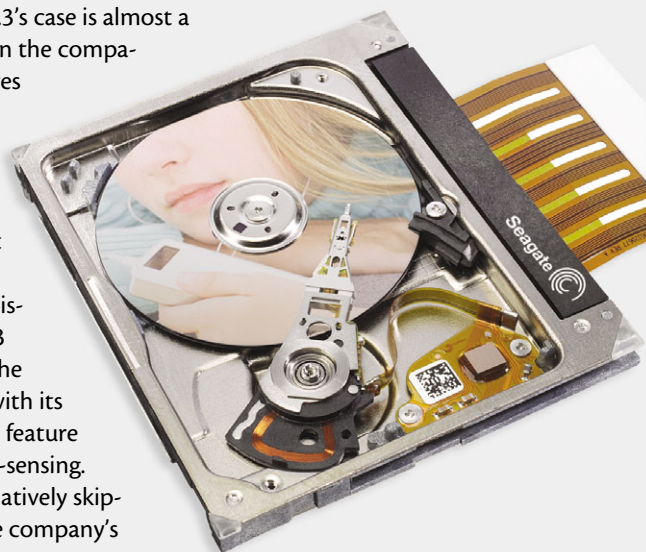


NEWGEAR

Tiny Drive, Huge Capacity

Here's something amazing that you can't buy—unless you get it in a new music player or phone, that is. Seagate's newest tiny hard drive uses perpendicular recording to store more than ever at 12GB. At the same time, the ST1.3's case is almost a quarter smaller than the company's earlier ST1 drives with 1-inch hard disks. It's less battery-draining, too. Seagate knows that people like to jog and exercise while listening to their MP3 players, so it built the drive to be tough with its G-Force Protection feature with optional drop-sensing. The ST1.3 is also relatively skip-proof thanks to the company's RunOn technology.

by Marty Sems



Fresh GPS

New-Fangled Directions In Navigation Devices

With GPS navigation devices proliferating like mad, it's no longer a question of whether you should ask for directions. The real question is: Of the dozens of models available on retail shelves, which digitally-powered route finder should you choose?

You won't have any problems finding a broad selection of GPS devices with

very different capabilities. We'll give you an idea of just how fast these products are changing and how you can put them to use.

Get Your Bearings

Many people want a dashboard-mounted driving companion to help them find their way through unfamiliar city streets; others require a handheld model

they can throw into their backpacks for a hike into the wilderness.

Some dashboard-mounted GPS units are equipped with batteries and a light build that makes them useful on foot, too. If you need the device primarily for foot travel, though, you'll want to invest in a smaller model. You can begin your GPS-buying journey by reviewing some of the newest options to hit the market.

Garmin Forerunner 305

\$376.91 • www.garmin.com

Athletes and outdoor lovers love GPS capabilities, but for very active people, even handheld models are too big. That's why Garmin created the Forerunner 305, a wristwatch-style GPS device with a design that actually wraps the GPS antenna around your wrist so that the receiver gets a better view of the sky.

You can't plot addresses on this device. Instead, you give it a starting point, and when you're done adventuring, the Forerunner helps you find your way back. Along the way it also tallies calories burned, distance, and heart rate. Although the display is colorless and

diminutive (1.3 x 0.8 inches), it is customizable and lets you divide up data display, so you can see exactly the data you want to in just a glimpse. Power flows from a 10-hour rechargeable Li-Ion battery.

One of the Forerunner's coolest features lets you download previously recorded courses and then compete against the earlier workout. You can even share your route with other people on the MotionBased (www.motionbased.com) Web site or download



course information from other users. And if you need competition, a Virtual

Partner (complete with varying speeds) will race you to the end of your course.

There's also an automatic pause, so you don't have to stop or start the timer when a traffic light disrupts your movement. If you prefer a model without the heart monitor, you might consider the Forerunner 205, which sells for \$100 less. Both units come with training software to help you optimize workouts.

Garmin GPSMAP 60Cx

\$482.13 • www.garmin.com

Garmin recently revamped a range of its successful handheld GPS devices, and one of the best is the GPSMAP 60Cx. In its new incarnation, this unit has a microSD card slot (a 64MB card is included), as well as a new GPS receiver that Garmin says works better in areas with interference, such as a forest with heavy leaf cover or high rock walls.

Although it's a small (6.1 x 2.4 x 1.3 inches [HxWxD]) model that weighs less

than 8 ounces with two AA batteries installed, the 60Cx has a full-color display that's 1.5 inches wide and 2.2 inches high. One set of batteries will last for about 18 hours. For additional map storage, you can use the 56MB of internal memory.

Your view will change depending on which maps you load. You can go with topography or inland lake maps, marine cartography, or street maps. As

you travel you can view an integrated outdoors calendar that lists each day's sunrise and sunset times, along with the best times to hunt and fish. A trip computer displays an odometer, stopped time, moving average, overall average, total time, maximum speed, and other pertinent details.



Lowrance Electronics iWAY 350c

\$499 • www.lowrance.com

The iWAY 350c is splendid evidence of just how far manufacturers will go to captivate potential buyers. In addition to typical navigation tools, this Lowrance Electronics product also includes MP3 player and picture viewer functions, an integrated 4GB hard drive preloaded with maps of the United States and Canada, SD/MMC (Secure Digital/MultiMediaCard) flash card slot, and dual Li-Ion batteries, so you can navigate without a power cord for up to 15 hours.

The color touchscreen measures 3.5 inches and offers several navigation views. You can select the "north up" view, go for a 2D presentation, or choose an elevated, more 3D view. With the pre-installed maps, you can navigate your way to one of the more than 5 million included points of interest.

You can also listen to your MP3 tunes via the 350C's built-in speaker. Better yet, you can use its FM modulator to



transmit a signal to your car's stereo and really crank up the volume.

You also receive a full range of accessories, including car power adapter, USB cable, protective cover, and a microfiber cloth for cleaning the display. In short, the 350c is a good bet if you need a unit that offers battery-powered capabilities and want some frilly extras, too.

Sony nav-u (NV-U70)

\$599.95 • www.sonymstyle.com

Leave it to Sony to devise a GPS device that wouldn't appear at all out of place perched on top of your home entertainment system. The nav-u looks like a shrunken WEGA television and features a large (3.5 inches) color touchscreen. For added appeal this unit has a screen that brightens and dims automatically depending on ambient light levels and, for clearer sound, a two-way speaker system.

The display has an 80-degree viewing angle so just about everyone in the car can

see where you're going. The touch-sensitive display is designed to emphasize simplicity, with a Repeat button to reiterate instructions you don't hear and a Search Nearby button designed to automatically find gas stations, restaurants, or locations included in the list of 1.6 million points of interest.



Because Sony preloads the nav-u with maps of the lower 48 states, you don't have to connect to a PC before you take it with you on the road. And because there's a Li-Ion battery inside, you can grab the nav-u and take it along with you if like; it weighs in at only 11 ounces and is 4 inches wide, making it the perfect size for a briefcase or large purse.

Thales Navigation Magellan RoadMate 760

\$799.99 • www.magellangps.com

Magellan's RoadMate 760 was the first device with an ability to announce the names of streets where you're supposed to turn. It can do this thanks to Say-Where, a tech-to-speech technology that, when paired with the 760's other capabilities, means that this model will tell you exactly how far it is until your next turn and then says the exact street name instead of something more generic such as, "Take the next right."

It has a number of other nifty features, too, such as Multi-Destination

Routing and Route Optimization. Enter as many as 20 destinations, and the unit will automatically sort each destination by the shortest and best route to each. Along the way the 760 will list some of the 7 million points of interest stored in its memory.

In addition, this model has an automatic night mode option that adjusts the color touchscreen for optimal brightness depending on the time of day. You



can choose one of 12 languages, spoken in either a male or female voice, and a volume control feature automatically increases voice loudness at speeds of more than 45mph. And if you hit slowdowns on a highway due to construction or traffic jams, a SmartDetour feature automatically suggests an alternate route.

Thales Navigation Magellan RoadMate 800

\$699.99 • www.magellangps.com

The Magellan RoadMate 800's name is a little misleading. It's a serious road warrior, but it's not designed solely for use in your automobile. This device comes packed with extras, such as a built-in MP3 player and digital photo viewer that make it enticing for people who travel on foot, too.

To provide power when you step out of the car, the 800 includes a rechargeable Li-Ion battery pack. It also has a 3.5-inch color touchscreen, 4.5GB of internal memory, and a memory slot that accommodates an SD card or MMC. As with other RoadMates, this one comes preloaded with maps of

North America, and it includes more than 6 million points of interest. If you plan to travel abroad, you're set with this model because it also comes with maps of 27

European countries preinstalled; however, you need to pay a fee before you can unlock them.

You can load your MP3 or WMA music files into internal memory or play them back through the card slot instead. Then you can create personalized playlists or adjust sound preferences using a digital equalizer with presets for various types of music.



This list of features barely scratches the surface because the 800 has a full range of navigational tools, including turn-by-turn voice guidance and the ability to switch to a bird's-eye view at any point in your travels. There's also a single-button feature that helps you pinpoint your location in case you need to provide it to an ambulance or tow truck.

TomTom GO 910

\$799 • www.tomtom.com

The GO 910 is TomTom's high-end portable navigation device, and it's brimming with features. Like the Magellan RoadMate 760, the GO 910 has text-to-speech capabilities designed to make it easier for you to see your next turn. And better yet,



the speech feature reads traffic alerts and SMS (Short Message Service) messages to you, so you can stay on top of things while keeping your eyes on the road.

With its integrated Bluetooth connectivity, you can use the 910 to place or receive phone calls while

you're driving. Connect your iPod, and you can use the 910 to play your music collection through your car's stereo. Or, because the 910 comes with a built-in 20GB hard drive and jukebox feature, you can just load all of your music files and play them on your car's stereo.

This model will also let you display your digital images as a slideshow. What's more, it has a 4-inch touchscreen and comes with a remote control to help you rein in all of its capabilities.

Final Destination

If you like any of the models we list, be sure to check out online user reviews to get a better idea of how well they work. Notice if users say a unit experiences delays in acquiring signals or if the navigation system sometimes offers incorrect directions because these kinds of problems might affect you, too.

In addition, although you already know that features vary wildly from

from unit to unit, keep in mind that sometimes minor features can have a huge impact on a product's performance and usability. For example, a lot of GPS units have internal antennas, but a few models include external antennas that you can adjust for slightly better reception. If you live in an area where there are a lot of potential signal disruptors, an external antenna might make all the difference. Likewise, a model that

automatically adjusts screen brightness for the differences in daytime and nighttime driving may make your GPS experiences much safer.

After you have a better idea of the kind of features and performance you can expect from a specific model, take the GPS plunge. No matter how unfamiliar you are with new territory, you will be able to find your way more efficiently.

by Nathan Chandler

Mobile Collaboration

How Does Microsoft Office Live Stack Up For Mobile Users?



For the most part, electronic collaboration put an end to carrying and mailing paper documents from one place to another. But now that we email with such alacrity, we need more. We need broader platforms on which we can revise and share documents related to our works in progress, and companies are stepping up to the plate with products aimed to fill that need. Take Microsoft, for example.

Microsoft's new Office Live (officelive.microsoft.com) isn't some Web-based

version of Microsoft Office. Rather, it's a Web hosting and collaborative tools suite. It has a number of features that benefit mobile users who need to work and communicate with co-workers or clients. Although product reviews of Microsoft Office Live focus on the Web site and email hosting aspects of this new Microsoft offering, they gloss over the aspects of greatest appeal to mobile workers and people working from home.

Microsoft Office Live was in beta at the time of this writing; we used the beta

version of Microsoft Office Live Essentials for this article.

Inside Microsoft Office Live

Later this year Microsoft plans to release three "flavors" of Office Live, all currently available as betas. Microsoft Office Live Basics Beta offers basic Web and email hosting and is due to remain a free offering. And When Microsoft Office Live Collaboration and Microsoft Office Essentials move out of beta status, you'll need to subscribe to each of the services to receive their full benefits.

Microsoft Office Live Collaboration adds online-shared space where geographically disparate workers can collaborate on Microsoft Office documents. The Collaboration version also adds a suite of Web-based business tools that include a contact list, calendar, and even a fully customizable Dashboard that pulls together all the business information you manage using Microsoft Office Live.

Microsoft Office Live Essentials includes the same Web site development and collaboration features as the Basics and Collaborative versions of Microsoft Office Live. For individuals or companies using Office Live Web hosting as their corporate Web sites, tracking site visitors is another available tool that gives you insight into how your customers interact with your Web site.

Reach Out To Other Users

After creating your Office Live site, you want to set your users up with accounts, so they can access Office Live's email, collaborative sites, and business tools. As with all secure Microsoft Web properties, Microsoft's .NET Passport provides user security for Microsoft Office Live. If users don't have a .NET Passport account, they need to sign up for an account and familiarize themselves with the security system. Although some people are critical of .NET Passport, it's important that you introduce the individuals you anticipate will access your Microsoft Office Live Shared Spaces and Business Tools to .NET Passport.

Manage Microsoft Office Live

Managing corporate-level email and collaboration applications such as Microsoft Exchange 2003, Microsoft Windows SharePoint Services 2003, and Lotus Notes Domino Server can be a daunting task for some users. To make these tasks less overwhelming, Microsoft includes tools with Office Live Collaboration and Office Live Essentials that even a mere mortal computer user can master.

Baris Cetinok, director of product management and marketing for Microsoft's Information Workers Services says, "Office Live services are designed to be self-service solutions for our customers. Hence, a nontechnical, computer-savvy

user could easily start utilizing Office Live services."

Microsoft Office Live Essentials and Office Live Collaboration don't require a vendor-certified administrator with a cubicle full of dog-eared computer books. However, if you plan to use either version as a collaboration platform, you should appoint at least one point person to serve as the Office Live account subscriber and administrator.

Integrate Office Live With Office 2003

An important element of any Web-based collaboration tool is integration with an Office suite. Microsoft Office Live integrates with Office 2003, enabling you to access your Office Live site. This

integration to Office includes the impending 2007 Microsoft Office System.

Office Live & Email

Some people may say that email is perhaps the original collaborative application. Microsoft Office Live can host your email, giving you 2GB of storage. If you choose to use Microsoft Office Live to host your email, you can choose to access it from Microsoft Outlook or a Web interface. Because Office Live email doesn't run on a POP (Post Office Protocol) server, you can't access Office Live email from a mobile device such as a Wi-Fi-enabled PDA or a smartphone.

Essentials vs. Collaboration

Office Live Essentials and Office Live Collaboration include collaboration tools that can benefit mobile and SOHO workers. The best part about these programs is that they let you outsource the hosting, maintenance, and security of the tools, thus enabling you to focus on your job.

Create shared sites. Office Live's Shared Sites feature enables you to create online collaboration platforms, called Shared Sites, using an easy-to-follow wizard that automates creation. These sites can fulfill a couple of collaboration missions, including vendor workspaces, team sites, and customer workspaces. The Team Site Shared Space provides the same sort of features as Microsoft Windows SharePoint Services 2003 Team Site without the need for a techie SharePoint Administrator.

Office Live's choices for Shared Sites is a bonus because it provides tools that help you better interact with customers and vendors by placing your information online. Microsoft Office Live's Customer Workspace is another collaboration tool that lets mobile users manage customer communications.

Microsoft Office Live also includes a Document Gallery where you can maintain a central library of project documents accessible to any authorized user visiting your Office Live site.

Adding storage space. If you use the Shared Sites feature, it won't take you

NEWGEAR

Ergonomically Correct



If you find yourself squinting, craning, slouching, or otherwise angling for a decent look at your display, then the Ergotron LX Desk-Mount Arm (\$169; www.ergotron.com) is the space-saving way to go.

Bolt this bad boy to your desk and then sit back and make the display come to you. The LX DeskMount Arm lets you rotate your display 90 degrees, tilt it 80 degrees, pan it 180 degrees, and lift and lower it more than a foot. Ergotron also offers the LX Notebook Arm for angling your docked notebook.

by Andrew Leibman

NEWGEAR

Ruggedized To The Max

Ever been so frustrated with your computer that you just wanted to chuck it off a bridge? Well, if you put your laptop in the iM2370 (\$165; www.stormcase.com), the latest in Hardigg Cases' Storm Case series, you could actually do it and, theoretically, not kill your laptop. The iM2370 is an air- and water-tight case that weighs just under six pounds. It features dual key-lockable latches and a lifetime guarantee. Its modest-sized frame means you can carry it on to flights and since it's made from Hardigg's patented HPX resin, rest easy knowing that your laptop is secure.



by Sam Evans

long to fill up the 50MB of storage space. At the time of this writing, you could get an additional 50MB of storage for \$1.95 per month.

Communicate & Collaborate

Office Live Collaboration and Office Lives Essentials give users the tools that let them collaborate with co-workers and clients without having to

involve IT personnel. Subscribers maintain control, including control over who gets permission to access confidential areas of shared sites, while in the background Microsoft's redundant systems allow for continuous collaboration even if a server crashes. In other words, if all goes according to Microsoft's plans, the services just work.

by Will Kelly

Microsoft Office Live & Mobile Devices

Pocket PCs and smartphones are becoming an integral part of every mobile worker's life. Microsoft's recent launch of Windows Mobile 5.0 and the UMCP (Ultra Mobile Computing Platform), otherwise known as "Origami," show Microsoft's commitment to mobile workers. However, the current beta of Office Live isn't mobile-device ready.

"We are currently exploring and working toward Mobile access in Office Live services," says BarisCetinok,

director of product management and marketing for Microsoft's Information Workers Services says. "We'll continue to innovate on all aspects of our service."

With Office Live running as a hosted service rather than software you install on your PC or a server, Microsoft is in a better position to innovate mobile device access because Office Live features can be added on an iterative basis in manners that largely don't interfere with user access and user experience.

Microsoft Office Live Features

You can sign up for Microsoft Office Live at officelive.microsoft.com. Microsoft Office Live Basics is available free. Based on pricing posted as of press time, Live Collaboration and Live Essentials will each cost \$29.95 per month after beta.

Microsoft Office Live Basics

- Easy-to-use Web site design tool
- Free domain name and hosting
- Five email accounts (username@domain.com)
- Storage and data transfer
- Web site traffic analysis and reporting tools
- Online Support pages and email support

Microsoft Office Live Collaboration

- Shared Sites for collaborating among internal employees and

external customers, suppliers, and vendors

- Online business applications saving the cost of IT infrastructure and maintenance
- Accessibility via an Internet connected PC running Internet Explorer 5.5 or higher
- 50MB of storage space
- Enhanced data protection including daily backup
- Customer support including free 24-hour phone, email, and billing support

Microsoft Office Live Essentials

Microsoft Office Live Essentials includes all the technical features of Microsoft Office Live Collaboration plus Web site traffic monitoring tools.

NEWSBRIEF

Yahoo! Does Travel Better

Yahoo! recently announced its upgraded travel services (travel.yahoo.com). You can now receive airfare and hotel comparisons instantly via Yahoo!'s home-page search box. You can also view satellite maps and even read others' opinions about tourist destinations or restaurants. If you type in a search query such as "compare Los Angeles hotels" you'll get a sample of some of the cheapest options Yahoo! search could find as well as a link to the Yahoo! FareChase site where you can further tailor your query.

by Sam Evans

NEWSBRIEF

EQO Brings Skype To Treo

EQO (eqo.com) now brings Skype to the Treo 600/650. To use EQO, you need to install Skype on a desktop or notebook computer and register for SkypeOut service. Once registered, download and install the EQO plug-in. After answering a few questions about your phone, EQO sends a device-specific version to your phone. Your notebook or desktop PC forwards calls to your mobile phone. Although a Wi-Fi version of Skype still isn't available for Treo users, EQO should help fill the gap. The software is freely available while in beta. EQO expects the software to be in beta through the summer and possibly longer.

by Chad Denton

Scot's Take

Chuckling It All For Apple's MacBook Pro



Scot Finnie is Online Editorial Director, Computerworld, and the author of Scot's Newsletter (www.scotsnewsletter.com). He's been a technology journalist for more than 20 years.

What would you think if this longtime Windows expert, reviewer of every beta of Windows Vista (not to mention most of those for Win3.x/95/98/Me/2000/XP), and voice of the IT world suddenly gave up on the established operating system from Microsoft and wantonly embraced the Macintosh?

OK, so that probably isn't going to happen. But I'm having a whale of a good time flirting with the idea.

In early April Apple surprised the world by releasing a public beta of its Boot Camp software, which lets you install WinXP on a second hard drive partition on Intel-based Macs—and that was it. I finally found the reasonable excuse I'd been looking for to take the plunge on both an Intel-based Mac and the specific model I'd long desired, the MacBook Pro. Because this is what credit cards are made for, I happily plunked down \$2,500 on a 2GHz MacBook Pro with a dual-core Intel CPU and a 120GB hard drive.

My trials with Apple's Boot Camp software were successful. (As it appears will also be the case with tests now underway on the Parallels' Mac OS X virtualization software that runs Windows from OS X.) After doing research, I was left with the MacBook Pro on my lap. It wound up in the family room of my home and is now the PC that gets the heaviest workout right

behind my office PC (which these days is a corporately dictated ThinkPad X series ultralight notebook).

Slowly but surely I made the MacBook Pro mine. I started working in Boot Camp's WinXP partition, but after only a few days I was booting exclusively into OS X. Boot Camp, by the way, creates a near-perfect WinXP installation on the MacBook Pro. Boot Camp's WinXP is screamingly fast, and the only real issues are some lesser hardware support issues, and the fact that you have to restart the computer to get into the WinXP partition.

I began by customizing the Dock, which is an elegant mix of the Windows Start menu, Quick Launch bar, and Taskbar. I installed Microsoft Office 2004, Firefox, Windows Media Player, Stuffit, and Photoshop. I already knew Apple's iChat was my favorite instant messaging app. I still have to find software to use on the Mac, such as a solid HTML editor (like HomeSite), an FTP client (I use CuteFTP with Windows), an RSS (Really Simple Syndication) client (I use FeedDemon for Windows), a professional quality screen shot program (I use SnagIt), and others I'm sure I'll need. Apple's application bundle is broader and deeper than WinXP's bundle. (That's one thing Microsoft is addressing in Vista.)

I configured my venerable HP LaserJet 5MP and the

excellent, recently introduced Canon PIXMA i4000R inkjet. (In fact, it was impossibly easy to configure the two printers on the Mac.) I configured networking without a hitch. I installed Microsoft's Remote Desktop Connection 1.0.3 client for the Mac, which lets me remotely access the Windows PCs on my network, and in particular, the one that runs the sole instance of my email package.

Stellar Design

There can be no doubt that the MacBook Pro's industrial design is awe inspiring. The lid hinge is semiconcealed, making the computer look almost seamless when closed. And the fan vents don't detract from the smooth lines and finish of the case because Apple conceals the vents across the inside of the hinge area. The lid latch has concealed catches that automatically extend as the lid closes and retract as it opens, so there are never any hooks protruding from the top of the display. The latch release flips up the lid when pressed to make it easy to get your thumb under it. The LCD, the bezel, and the cover are about the thickness of a pad of legal paper; making it the thinnest display I've ever seen on a full-sized notebook. When closed the MacBook Pro is a slim 1-inch thick. So what if the LCD lid is a bit delicate; it's cool. Just be careful.

Audio isn't an afterthought on the MacBook Pro, which has prominent stereo speakers that won't sound muffled when your computer sits on your lap.

The MacBook Pro has one USB 2.0 port on both the left and right sides, something that all notebook manufacturers should copy. It has a built-in Web cam in the LCD bezel. It also comes with a remote control and Front Row software that makes playing media a more pleasurable experience. (Especially because the MacBook Pro's 15.4-inch screen has a cinematic aspect ratio.) Other ports and peripherals include FireWire 400, an ExpressCard/34 slot, a native DVI (Digital Visual Interface) external monitor port, CD-RW/DVD-RW SuperDrive, built-in 54Mbps AirPort Extreme 802.11g wireless networking, Gigabit Ethernet RJ-45 port, Bluetooth 2.0 enhanced data rate, lithium-polymer battery, and many small unique features.

With two 2GHz Intel CPUs mounted on the motherboard, 667MHz front-side bus, 1GB of RAM, the ATI Radeon x1600 graphics processor with 256MB of memory, and a 120GB 5,400rpm hard drive, my MacBook Pro is fast and well-equipped.

Some Qualms

But lest Mac aficionados get that smug little smile too firmly affixed on their

faces, there are a few things about the MacBook Pro I'd like to change. Apple labels the BACKSPACE key as the DELETE key, and on mobile Mac keyboards there's no dedicated key that deletes to the right (the way the Windows DELETE key works). I have hated this omission on the Mac for 20 years. Apple's only concession is the FN-DELETE key combination, which is easy enough to remember, but a sign of little respect for those from the Windows world.

I'm also not a big fan of the MagSafe power cord. (Although it *sounds* like a good idea.) The MacBook Pro's AC adapter "plugs" into the computer magnetically. The idea being that if you leave your computer on a coffee table, for instance, and someone walks by and trips on the cord, the magnet will simply pull away from the notebook instead of pulling your Mac off the side of the table. So far that hasn't happened to me. However on several occasions the power cord has fallen off the computer, and it does so ever so silently. As a result, I frequently look down and discover I've been running on battery power for who knows how long. An option to lock the MagSafe to the computer would be a good idea.

I also have some trouble with the MacBook Pro's single-button touchpad: the Trackpad. It's true that OS X

doesn't really need the second button, and CTRL-click delivers the menu options you would receive when you right-click a menu. But for those of us who are less dyed in the wool Mac users, what does a second button hurt? The touchpad also requires you to move your hand to a different position below the keyboard; something touch typists don't relish.

Shutdown

There's no question that with Intel dual-core power and high-end ATI video under the hood, the Mac user interface running over a Unix-derived OS, and Apple's attention to consumer interest and skill in consumer-electronics industrial design, the MacBook Pro has significant advantages. Anyone who doubts that OS X is inherently better than Windows probably hasn't really given the Mac an honest shot. The switch to Intel means that the Windows and Mac worlds will continue to draw closer together. Although that doesn't mean Macs are the better choice for some people, Apple has been an important leader in mobile computers for years. Other hardware and software makers have copied many of the things Apple has done. Along with the ThinkPad T series, the MacBook Pro represents the current state of the art.



Productivity Boosters

Get The Most Out Of Office
With Helpful Tips & Tricks



You're a busy professional, and you don't have time for software that doesn't do what you want. In fact, what you'd *really* like are programs that would read your mind—and then set off to seamlessly carry out your wishes.

OK, that's not possible (yet). But you can definitely boost your productivity by learning how to manipulate a few key features in your favorite programs.

Bullets With Style (WordPerfect)

You can quickly apply bullets to an existing list in a WordPerfect document by selecting the list and then clicking the Bullets button on the WordPerfect toolbar. However, you're not limited to the bullet style shown on the button. Instead, you can click the Bullet button's drop-down arrow and then choose a style on the displayed submenu. For a wider variety of choices, click the More button that displays at the bottom of the submenu. In the Bullets & Numbering dialog box that opens, double-click a style to select it.

You can expand your choices even more by clicking the More Bullets button in the Bullets & Numbering dialog box. In the Symbols dialog box that displays, double-click a symbol to place it in the Bullets & Numbering dialog box. Keep adding symbols to the Bullets & Numbering dialog box and then click Close. After the symbols have been added to the Bullets & Numbering dialog box, you can use them in your document by double-clicking them.

Bullets On The Fly (WordPerfect)

Instead of relying on the Bullets button to add markers to your document, you

can use WordPerfect's QuickBullets feature to create bullets as needed with a few simple keystrokes. You do this by typing a QuickBullets character, such as an asterisk, and then relying on WordPerfect to automatically format it.

Before you can use QuickBullet characters, you must turn on the feature. To do this, choose Tools, QuickCorrect. In the QuickCorrect dialog box, click the Format As-You-Go tab. Check the box for QuickBullets and then click OK.

Next, click in your document where you want to place the bullet. Type a QuickBullet character (such as the greater than [>] or plus [+] symbols), press TAB, and then type your text. When you press ENTER to move the mouse pointer down to the next line, WordPerfect will automatically convert your typed character into a formatted bullet. Repeat this process for each item and then press BACKSPACE to discontinue the bullets.

Use AutoCorrect (Word)

Have you ever typed "teh" in place of "the" or "adn" in place of "and"? If so, you are not alone. These commonly mistyped words are the bane of every person who sits down to create a word processing document.

Luckily, help is on the way in the form of Word's AutoCorrect feature. By default, Word includes a list of commonly mistyped or misspelled words paired up with their corrected version. As you type, Word compares your words to those on its AutoCorrect list. If necessary, it automatically corrects the spelling of erroneous words whenever you type a word incorrectly and then press the Spacebar.

To turn on AutoCorrect, choose Tools and then AutoCorrect Options. Click the AutoCorrect tab, check the box for Replace Text As You Type, and then choose OK.

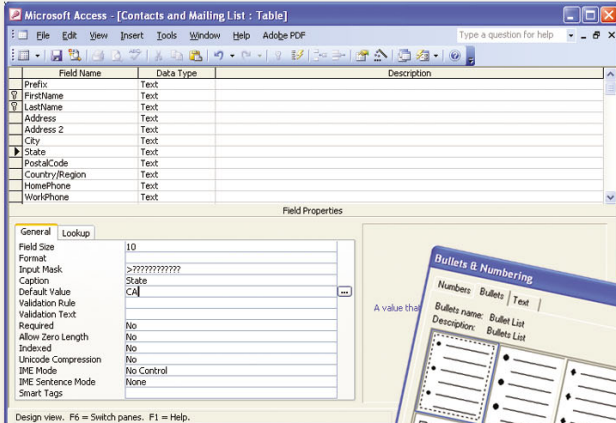
Create Custom AutoCorrect Entries (Word)

You can also add your own entries to the AutoCorrect list. This helps you type faster because you don't have to worry so much about words that you frequently mistype. Additionally, you can create custom entries for words that you type frequently, such as your company's name. An effective method is to create an abbreviation that is automatically replaced with the word's or phrase's full-length version. For example, you can make an entry that replaces your initials with your full name.

To create an entry, choose Tools and then AutoCorrect Options to open the AutoCorrect Options dialog box. On the AutoCorrect page, type the abbreviation in the Replace field and then type the full (or corrected) version in the With field. Click Add and then OK. Finally, test your new AutoCorrect entry by typing the abbreviation in your document. When you press the Spacebar, the abbreviation will be replaced by the full word.

Take Advantage Of Data Entry Shortcuts (Access)

Entering data in an Access table is sometimes laborious. However, you can drastically speed up the process by taking advantage of Access's built-in keyboard shortcuts. For example, to quickly enter the current date in a field, press CTRL-;. To enter the current time, press



Microsoft Access - [Contacts and Mailing List : Table]

Field Name | Data Type | Description

Prefix	Text	
FirstName	Text	
LastName	Text	
Address	Text	
Address 2	Text	
City	Text	
State	Text	
PostalCode	Text	
Country/Region	Text	
HomePhone	Text	
WorkPhone	Text	

Field Properties

General | Lookup

Field Size: 10

Format: >???????????

Input Mask: CA

Caption: State

Default Value: NY

Validation Rule: No

Validation Text: No

Required: No

Allow Zero Length: No

Indexed: No

Unicode Compression: No

BRE Mode: No Control

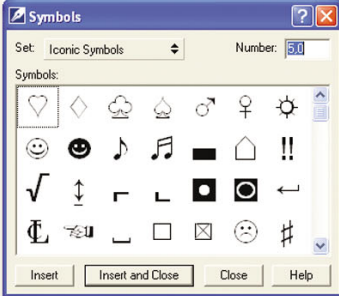
BRE Sentence Mode: None

Smart Tags: None

Design view. F6 = Switch panes. F1 = Help.

▲ You can specify a default value for a field and then let Access automatically insert the data for you.

▼ You can use any graphic available in the Symbol dialog box as a bullet.

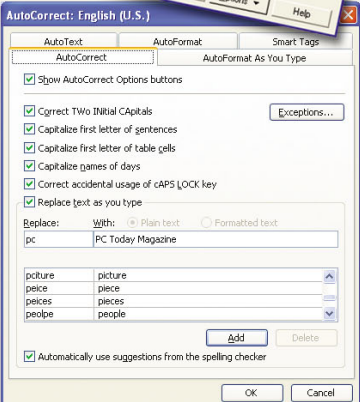


Set: Iconic Symbols | Number: 50

Symbols:

Insert | Insert and Close | Close | Help

► Use Word's AutoCorrect feature to seamlessly correct mistyped or misspelled words.



AutoCorrect: English (U.S.)

AutoText | AutoFormat | Smart Tags

AutoCorrect

AutoFormat As You Type

☒ Show AutoCorrect Options buttons

☒ Correct Two Initial Capitals

☒ Capitalize first letter of sentences

☒ Capitalize first letter of table cells

☒ Capitalize names of days

☒ Correct accidental usage of CAPS LOCK key

☒ Replace text as you type

Replace: with | Plain text | Formatted text

pc | PC Today Magazine

picture | picture

piece | piece

pieces | pieces

peope | people

Add | Delete

☒ Automatically use suggestions from the spelling checker

OK | Cancel

WordPerfect provides you with a wide variety of bullet styles. You can also use the program's Quick Bullet feature to create bullets on the fly.

NEWS BRIEF

Sputnik Serves Branded Wi-Fi

Thanks to a new, free, business-focused service from Sputnik (www.sputnik.com), we could be seeing plenty of new hot spots around the country in coming months. SputnikNet Express gives businesses such as coffee shops and cafes the ability to run free wireless networks complete with custom welcome pages. These wireless home pages can include local maps and local search, in addition to links to movie listings, weather, and local advertising. All that's required is a compatible access point.

by Christian Perry

NEWS BRIEF

Cingular Hooks Up HP

Cingular recently finalized plans to bring BroadbandConnect, a GSM-based 3G-level service, to HP's business-class notebooks as a built-in feature. With BroadbandConnect, select HP notebooks can connect to cellular networks to stream audio or video and browse the Internet with throughput speeds comparable to EVDO services, which average 400-700Kbps. The notebooks, due later this year, will have the upper hand for frequent business travelers because they'll use a service that is compatible with multiple carriers' networks in more than 100 countries, unlike EVDO-capable notebooks, which rely on CDMA networks that are less prevalent overseas.

by Andrew Leibman

SHIFT-CTRL-;. You can also duplicate the value in the cell above the one you're currently editing by pressing CTRL-.

Set Default Field Values (Access)

Have you ever found yourself entering the same information in a field (such as a state field) for the vast majority of records—and then wondering if there was a way to speed up the process?

Fortunately, you can save yourself a lot of effort and typing by specifying a default value for a field. When you do so, Access automatically enters the default value in the field for each new record. However, even when you designate a default value, you still have the freedom to enter other data for any record.

Furthermore, if the table already contains records, they aren't affected by the newly set default value.

To set the default value for a table's field, first open the table, and then choose View and then Design View. Click the field (such as State) in the upper pane. When you do so, the field's properties display in the lower pane. In the Field Properties pane, click the text box for Default Value. Enter the text that you want to use as the default value (such as NY or OH). Click the Save button to update your table. If you want to see how the setting works, choose View and then Datasheet View to see your table's records. Any new records will use the default value.

by Linda Bird

Timing Is Everything

Working With Calendars In Outlook 2003

For those of us with hectic lives, it's easy to become overloaded with obligations and have troubles keeping track of them. Outlook 2003's Calendar feature is a great scheduling and time management tool that helps us organize all of our commitments.

Organize Events

All the tasks we'll detail will begin in Calendar view; click the Calendar button in the Navigation pane to open this view. By default you'll have a single calendar. You can create multiple calendars and view them side by side, but it's easiest to work with a single calendar. Outlook cannot merge schedules across multiple calendars, nor can it merge multiple calendars into one.

Add Calendar Entries

The easiest way to add an event is to switch to the Work Week or Month view and locate the date and/or time you want. To locate a future date, use the calendars in the Navigation pane. Right-click the desired time slot and select an event type. From the main Appointment display, you can enter a subject, create reminders, assign a category, and more. If you need help scheduling your event, click the Scheduling tab in this display and click the AutoPick Next button. You can also add attendees from this tab.

Assign Categories & Labels

You can classify events by assigning them labels or categories. Outlook marks



labeled events with a corresponding color, so you can easily identify and locate on the calendar all events with a particular label. Assigning categories doesn't change the appearance of items on the calendar, but it lets you group and view all the events in one or more categories.

To assign a label, right-click an item in your calendar, select Label, and choose a label color. To change the titles assigned to the colors, select Edit Labels from the same menu. You can even create rules to automatically label your events. (To access this feature, select Arrange By from the View menu, choose Current View, select Customize Current View, and click the Automatic Formatting button.)

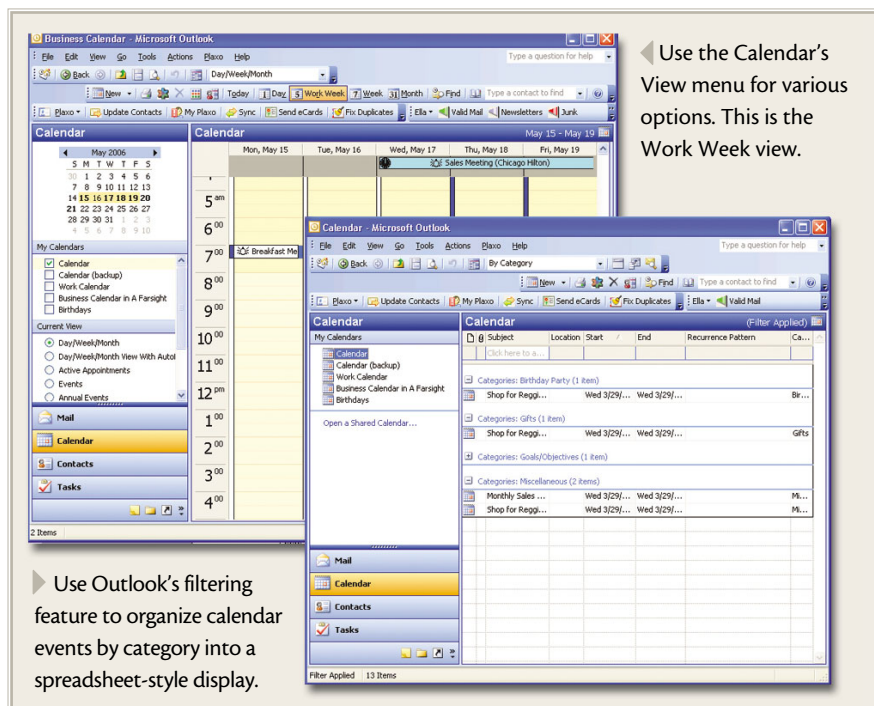
To assign a category, right-click an item in your calendar and select Categories. In the Categories dialog box, select one or more categories and click OK. If you need to create a new category, click the Master Category List button, provide a name for the new category, and click Add.

Filter Calendars By Category

To display calendar items by category, select Arrange By from the View menu, click Current View, and select By Category. Outlook presents a spreadsheet-style view with your events grouped by category. To display only certain categories, select Customize Current View instead of By Category and then click Filter. Click the More Choices tab and the Categories button to select the ones you want to view.

These suggestions only scratch the surface of Outlook's Calendar feature. After you familiarize yourself with the function, you'll discover even more ways to use this handy tool.

by Jennifer Farwell



Stay In The Know

Use Comments To Give Clarity To Your Excel Spreadsheets

At first glance, those cells filled with numeric data might not seem conducive to writing textual notes for yourself or other users. Thankfully, Excel gives you the option to insert comments that are easy to view or hide.

Insert Comments

To start, right-click inside the appropriate cell and select Insert Comment from the pop-up menu. A text box appears with an arrow connecting it to your cell. Your cursor automatically appears in the text box. Type your comment and modify the font size and style on the formatting toolbar as needed. When your comment is finished, simply click another cell to exit the text box.

Once you've exited the comment, notice that it is no longer visible. Instead, its cell has a small red triangle in the corner. To view the comment, hold your cursor over that cell.

You can also insert comments by using the Insert menu on the Standard toolbar. Select a cell without a comment. To insert a comment, select Comment from the Insert menu. If you select a cell that already contains a comment, the option on the Insert menu will be Edit Comment.

Manipulate Comments

Once you have inserted a comment, the right-click menu offers more options. To edit your comment, select Edit Comment from the menu and then edit within the

text box. To delete a comment, select Delete Comment. By default, comments are hidden until you scroll over them. To keep a comment in view when you aren't scrolled over it, select Show Comment from the right-click menu. To hide it again, select Hide Comment. To resize the text box, simply click and drag one of the eight white circles on the text box border. To move a comment box, click and drag the border itself.

Review Comments

Select Comments from the View menu on the Standard toolbar to open the Reviewing toolbar. This toolbar offers various comment options. The available options change depending on the status of the cell (such as whether it contains a

comment or not and whether the comment is hidden or viewable). Buttons on the Reviewing toolbar include New Comment (if the currently selected cell has no comment) or Edit Comment (if the currently selected cell already contains a comment). To jump from one comment to the next, click the Previous Comment or Next Comment buttons. If the currently selected cell contains a comment, click Show Comment or Hide Comment, as necessary. You can also Hide All Comments or Show All Comments at the click of the next button or delete the comment on the currently selected cell by clicking the Delete Comment button.

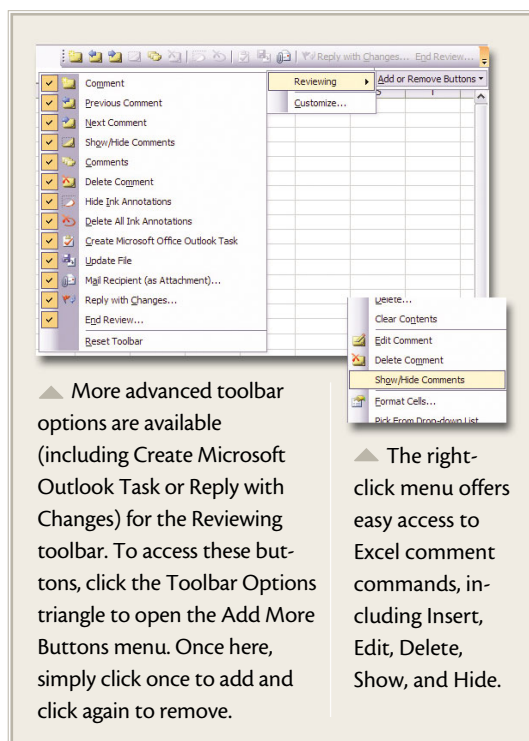
Print Comments

Comments do not automatically appear in a printed Excel document, even if you can see them on your screen. To print comments, first select Show Comment for each comment you want to display (or Show All Comments on the Reviewing toolbar). Then open the File menu on the Standard toolbar and select Page Setup. On the Sheet tab of this dialog box, make a selection in the Comments drop-down menu (either As Displayed On Sheet or At End Of Sheet) to indicate how your comments should appear. Your comments will now appear on the printed document.

Make A Note

Inserting comments in Excel is a simple way to help you keep track of the details of your data. Whether you need to make a note for yourself or for another user, comments let you keep all the necessary information in one place without disrupting the look of your spreadsheet.

by Liz Stefaniak and Van T. Huett



Wi-Fi On Steroids

The Promise Of 802.11n

It's fast, it's wireless, and it's coming to a coffee shop, airport, or LAN (local-area network) near you. It's 802.11n, a new specification that outperforms current Wi-Fi technologies 802.11b and 802.11g in terms of operating distance and transmission speed. Imagine dozens of people viewing DVD-quality streaming video

on the same network at the same time without a glitch and you get a small idea of what 802.11n makes possible.

Until recently, wireless hardware vendors have been engaged in a battle for dominance that even this speed demon has not been able to outrun. Fortunately a push by 27 hardware vendors in late 2005 to draft a compromise finally

started the clock ticking again. Now it looks like some early, fully certified 802.11n products may hit store shelves in a little over a year. Will 802.11n be worth the wait? Will it interoperate with your existing 802.11 networks? Follow along as we explore the factors that make 802.11n different and outline the challenges still surrounding its adoption.

History In The Making

The 802.11n specification is the latest, greatest amendment (update) to the original 802.11 standard first ratified in 1997. Back then Wi-Fi was still a foreign concept to most PC users, and 802.11 was a dog without enough bite to garner much attention. At its best, 802.11 supported raw data rates of only 2Mbps. Wireless networks spread bandwidth among all users. Even if conditions were perfect and a provider could squeeze out the entire 2Mbps of bandwidth, an average-sized network of 20 users would only have had the ability to provide each user with approximately 100Kbps of bandwidth; less than two times the speed of dial-up.

The 802.11b amendment in 1999 helped the situation somewhat. Theoretically, 802.11b supports maximum raw data rates of 11Mbps. In practical application, 802.11b transmissions travel at between 5Mbps and 7Mbps (depending on other technologies) at a distance of about 100-feet indoors (further outdoors with powerful antennas). For our sample 20-user setup, that's between 250Kbps and 350Kbps per user. (A third amendment, 802.11a, is faster than 802.11b but is rarely employed because of distance limitations.)

Debuting in 2003, 802.11g opened the window. It offered maximum theoretical data rates of 54Mbps; around 25Mbps in real-world situations. Our 20 network users could now enjoy speeds of more

than 1Mbps—the minimum for the MPEG-1 codec, which can reproduce streaming video at VHS quality.

Additionally, 802.11g devices were (and are) fully compatible with 802.11b, enabling folks with older cards to log in to these newer high-speed networks. Unfortunately having products of both specifications on a network tends to slow the entire network down. That presented a challenge for hotspot providers and other network groups. What's the

and networking vendors jumped into the fray, each hoping to promote its own technologies for the specification. At one point the IEEE had 61 proposals on the table. However by February 2005, TGn had whittled the number of draft proposals down to two, each of which had a large group of backers.

The WWiSE (World Wide Spectrum Efficiency) group, which includes Airgo Networks, Broadcom, Motorola, and Texas Instruments, among others, promoted

“... 802.11g devices were (and are) fully compatible with 802.11b, enabling folks with older cards to log in to these newer high-speed networks.”

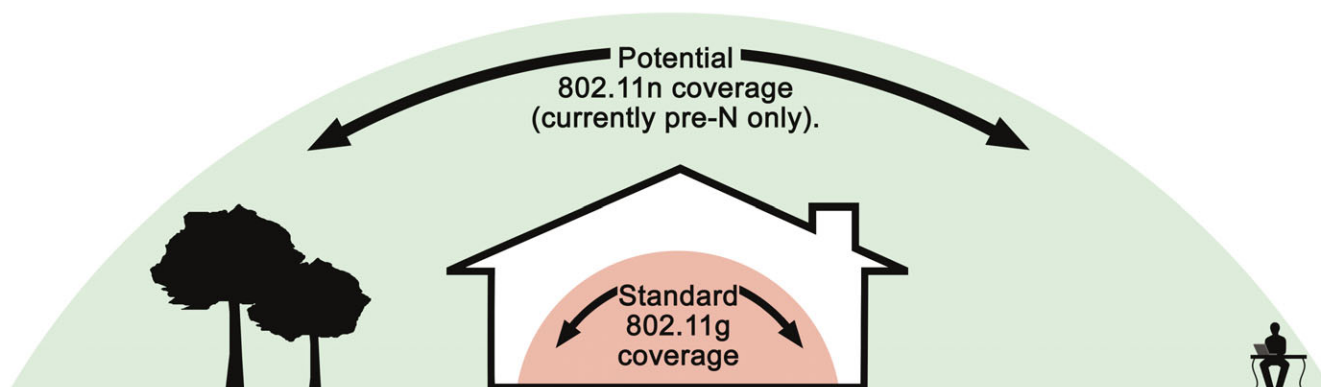
point of upgrading to the latest technology if one user with an old notebook will bring the network to its knees?

Faster, Further, Better

In late 2003, the IEEE (Institute of Electrical and Electronics Engineers, the standards body that oversees 802.11) announced a new task group, TGn, which would develop the specification for yet another amendment to the standard: 802.11n. IEEE specified that the minimum real data speed of 802.11 would be 100Mbps. (As we'll discuss later, the final draft proposal far exceeded this target.) Many hardware

using channels of approximately the same bandwidth (20MHz) as those currently in use for 802.11b/g networks. To boost throughput to 135Mbps in real-world networks, the solution would employ a technology called MIMO (multiple input/multiple output).

With MIMO, both the receiver and the transmitter have multiple antennas. The transmitter breaks the data feed into multiple (two in the WWiSE solution) data streams and sends it out across the antennas simultaneously. The receiver then garners the data from its two antennas and reassembles it on the other end.



Hardware manufacturer Belkin claims its 802.11n MIMO (multiple input/multiple output) router (currently in pre-N stage) can reach across distances of up to 250,000 square feet.

The other group, TGn Sync, which counted Atheros Communications, Intel, Philips, Sony, and others in its camp, proposed using a double-width, 40MHz channel as a better solution. Using twice the bandwidth, combined with sophisticated data manipulation and transmission schemes, TGn devices could transmit data in real-world environments at rates up to 315Mbps.

Twice the bandwidth with more than twice the data sounds great, right? Here's the rub. In addition to hosting 802.11b, 802.11g, and now 802.11n transmissions, 2.4GHz is also the dance band for Bluetooth devices, microwave ovens, and some cordless telephones. As you can probably imagine, that radio band can get pretty crowded, especially in public places where you'll often find

non-overlapping channels would fit on the 2.4 band (allowing breathing room in between). With a 40MHz channel, two would barely fit, leaving little room for other, nonoverlapping transmissions. Consequently, critics of the TGn Sync solution say widespread adoption of the 40MHz solution could easily result in increased channel overlap, spectrum overload, and an unacceptable level of interference.

On the other hand, critics of the WWiSE scheme asserted that the multiple-antenna setup made the solution overly expensive to implement and operate. They also felt power requirements were too great given the limited increase in throughput.

Each technology enjoyed enough supporters that neither group could get the

formation of EWC (Enhanced Wireless Consortium).

The EWC came up with its own hybrid compromise proposal and then presented it to TGn. The draft proposal recommended using a 20MHz data stream with MIMO to increase throughput as the base component, but it made the 40MHz bandwidth solution an optional component. If a device operating at 40MHz were to detect separate existing networks nearby, it would lower channel width to 20MHz to avoid interference. (Unfortunately this move also reduces throughput substantially.)

The proposal far exceeded the IEEE's original requirements. With perfect conditions, using a 40MHz bandwidth channel with MIMO (up to four antennas), maximum data rates could approach a whopping 600Mbps; over 10 times that of 802.11g. (Experts say such speeds are impractical with present technologies, but possible in the future.) The use of multiple antennas also increases signal strength and reduces interference, enabling transmissions over ranges up to 800% that of 802.11g products (up to 250,000 square feet, according to hardware manufacturer Belkin).

In January the IEEE ratified the compromise proposal as a baseline draft specification. At the time, Atheros representatives said the draft was complete enough that there was little risk of major changes before final draft in 2007. "We are very pleased that the IEEE unanimously voted the EWC specification as

“Twice the bandwidth with more than twice the data sounds great, right?”

Wi-Fi networks. Just like a group of diners trying to talk in a noisy restaurant, when too many devices attempt to use the same band at once, the transmissions tend to drown one another out (cause interference), and the result becomes a hopeless cacophony of unsuccessful communications.

The 2.4GHz band is less than 100MHz wide (between 83MHz and 96MHz, depending on local regulations). With 802.11b/g and the WWiSE scheme, three

75% of votes required for ratification by the TGn. By mid-2005, the review and approval process had broken down. Industry experts started wondering if 802.11n might be a lot farther off than anyone would ever have expected.

Compromise In The Air

Last fall, Intel and 26 other companies, including heavy hitters such as Cisco, Broadcom, and Sony, took steps to resolve the impasse with the

the draft 802.11n standard," said Atheros president and CEO Craig Barratt at the time.

"With this draft specification in place, our customers in each segment including PCs, retail, enterprise, consumer electronics, and handsets can now develop interoperable products based on the draft 11n specification."

This reassurance set vendors sprinting for the finish line, and by March, companies were announcing precertification (pre-N) products that supported data speeds in excess of 300Mbps. (Precertification products are those that companies develop and market before a specification is finalized, hoping the resulting finished specification will be close enough to avoid substantial modifications.)

The Perfect Fit?

The draft proposal (and the potential performance it touts) offer tantalizing possibilities for the wireless world. For example, a 600Mbps wireless network (which shares its bandwidth among all users) could support as many as 60 users simultaneously who could enjoy full-motion, full-screen streaming video feeds at near DVD quality (10Mbps). It could also provide 400 users with simultaneous T1 (1.5Mbps) connections for Internet or VoIP (Voice over Internet Protocol).

However, despite excitement relating to the ratification of the draft proposal, acceptance of this dual-mode



Airgo: Airgo Networks is a leader in MIMO technology development; many of the pre-N products employ its chipsets.



Belkin both (also provided individually): MIMO (multiple input/multiple output) products, such as these Belkin routers, use two, three, or even four antennas to improve signal strength and throughput, as well as increase signal integrity.

compromise presents an interesting paradox. Because the 2.4GHz spectrum is so crowded, the IEEE may have to decide exactly where in the spectrum the optional 40MHz channel must sit. This could pose a challenge for pre-N products that already chose a different portion of the band. Additionally, in such a crowded environment, finding a spot for the 40MHz channel that everyone can agree on may prove a problem. If that is the case, the IEEE may tell vendors to figure it out on their own, which could make interoperability, a requirement of this specification, more of a problem.

At press time, some mixed-vendor and bandwidth networks employing the 802.11n draft specification could achieve speeds no better than those of 802.11g products. To get 200Mbps or more, the user would need a proprietary or compatible solution (all devices from the same manufacturer or designed to work together). Additionally in testing, some of the 40MHz-compliant products were not backward-compatible with 802.11b/g networks at all.

"The key question for consumers is standard support and interoperability," says Frank Hanzlik, Managing Director of Wi-Fi Alliance, a trade organization that is developing the certification procedures for 802.11n. "We still have a considerable amount of testing to do. The IEEE is saying September of 2007 for a

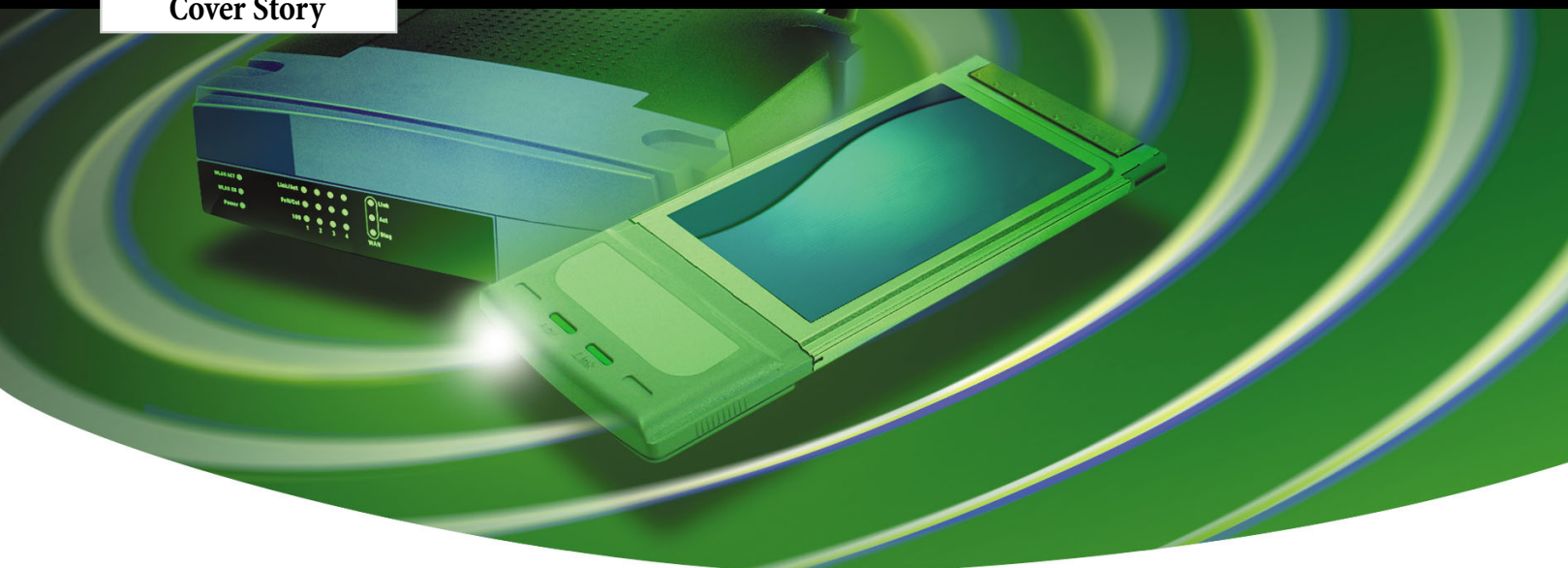
draft of the final amendment, with publication in mid-2008. Some folks are saying 'let's beat that date,' but the process must take time if it's to give consumers top performance and reliability."

Final Countdown

When it arrives, will 802.11n fulfill the many promises its proponents have made? "We're seeing data rates of 150Mbps to 600Mbps in testing, with throughput about half that," says Hanzlik. "Can some people do 600Mbps? Sure, but what is the range of the network: A piece of 8.5- x 11-inch paper?" (Bandwidth drops as distances increase.)

"Above 150Mbps to 200 Mbps, maybe 300Mbps seems very doable," Hanzlik continues. "However if you opt for the first solutions out of the gate, be willing to accept that a product may not give you this sort of performance unless you pair it with other new solutions from the same or a partnering vendor."

And if 802.11n isn't fast enough for you, just wait a year or two. Already the WIGWAM (Wireless Gigabit With Advanced Multimedia) project, a German-led consortium of corporate and university researchers, is working on a MIMO-based, 1Gbps wireless product. WIGWAM hopes to integrate the technology with 802.11, or possibly deliver it standalone, by 2008. Anyone up for another race? **by Jennifer Farwell**



802.11n Stand-Ins

Will They Work With The Real 802.11n?

In the alphabet soup of wireless technologies, the latest Wi-Fi standard newcomer showing great promise is 802.11n. The 802.11 family of wireless standards includes several “over-the-air” modulation techniques, all of which use the same protocol. In January 2004 the IEEE (Institute of Electrical and Electronic Engineers) announced that it had formed a new 802.11 Task Group (TGn) to develop an amendment to the 802.11 standard for wireless local-area networks. Two years later 802.11n has begun to emerge, and products labelled as “Pre-N MIMO [multiple-input multiple-output]” are available on the market. The 802.11n standard can achieve 540Mb of bandwidth, 40 times faster than 802.11b and 10 times faster than 802.11g, and it has eight times longer range. The ability to achieve such high bandwidth and longer range builds upon MIMO technology.

802.11n goes beyond previous 802.11 standards and is designed with a view to high transfer speeds and greater range than has been available up until now. The ultimate aim will be to provide the same capability to handle high utilization tasks (such as video streaming) as found in Ethernet cabling today. MIMO is a new approach for boosting wireless bandwidth and range by creating multiple paths to carry more information than previously possible. For example, in earlier wireless technologies such as 802.11b or 802.11g, only a single antenna might be used for transmitting and receiving. MIMO uses multiple transmitting antennas, multiple receiving antennas, and other techniques (spatial multiplexing) for increased bandwidth, range, and reliability.

MIMO improves performance even when it’s used at just one end of a link. In cases where a Wi-Fi client uses 802.11b/g the MIMO access point won’t increase the speed of the client’s Wi-Fi card, but it will extend the range at the corresponding speed (54Mb, for example). 802.11n uses both 2.4GHz and 5GHz frequencies and is designed to increase speeds far beyond the 54Mbps

achieved by 802.11g, or even the 108Mbps claimed by 802.11g+.

The Pre-N Hullabaloo

While the 802.11n Wi-Fi standard is still in the IEEE draft version, the incompatibility controversy swirls. The trouble with 802.11n is that there’s a bit of old-fashioned trench warfare getting in the way. Because of this, there has been some “delay” in getting 802.11n to fruition. As a result, the EWC (Enhanced Wireless Consortium), which is supported by wireless companies such as Linksys, D-Link, Netgear, Broadcom, and Intel, to name just a few, was formed to help accelerate the IEEE 802.11n developmental process. “There is no 802.11n specification, at least not yet,” says TeleComp Research & Development CEO Angel Gomez, Ph.D. “The standard needs a 75% concurrence and so far has only received 56%. There will surely be changes before it becomes a standard.”

TGn Sync, an industry body that includes manufacturers Atheros, Qualcomm, and Sony, is in fundamental disagreement with the WWiSE (World-Wide Spectrum Efficiency) group. TGn

Sync wants to expand the currently used 20MHz channel to 40MHz to boost throughput; whereas WWiSE, a group that includes Airgo, Broadcom, and Texas Instruments, wants to work within the existing 20MHz channel for better compatibility with systems around the globe. With performance ranging from 100Mbps to 2Gbps, Ultra-Wideband-based systems will also strive to deliver ultra-fast and secure wireless connections. UWB differs from other high-performance wireless technologies by transmitting over a very wide radio wave spectrum, using a series of narrow and low power pulses. The combination of UWB's low power, wide bandwidth, and pulse technology results in significantly less interference than is experienced when using conventional narrowband radio signals. One important caveat: UWB, like Bluetooth, is limited to short distances and is therefore restricted for use only in devices that remain within close proximity of one another. The two opposing groups have different views on the technicalities of implementing the technology, and despite much discussion over an extended period of time, they are still locking horns over this issue. On the one side of the technology divide are Linksys, Belkin, and Netgear, who offer MIMO products based on Airgo chips. Netgear, in particular, uses the chips along with Video54 smart antenna (or sectorized antenna) technology. On the other bank of the divide, D-Link boasts its use of beam-forming smart antenna technology from Atheros Communications. While it appears that 802.11n, with its long ranges, will likely be competing for home networks, UWB seems poised to take advantage of its high-speed operation (while using low power

consumption) for short-range interconnecting devices such as PCs and mobile equipment. So far neither side is able to achieve the majority necessary for a



The D-Link RangeBooster N 650 Router (DIR-635) utilizes draft 802.11n technology for speeds up to 650% faster than a typical 802.11g wireless connection.

decision on acceptance of "their" variant. And so the argument continues on.

The tide may be changing soon, as the distinctions between 802.11n and UWB become blurred. With the push to make 802.11n the industry standard, its recent modifications have resulted in decreased power consumption and increased speeds, making it finally capable of competition in the arena of portable equipment applications. Airgo's proprietary wireless communication technique, MIMO-OFDM (Orthogonal Frequency Division Multiplexing), was developed as the foundation for defining the new IEEE 802.11n standard for next-generation Wi-Fi. MIMO-OFDM combines MIMO and OFDM techniques to achieve even greater throughput than MIMO alone. OFDM is a modulation scheme that divides the wireless broadband channel into many "sub-channels" resulting in a more efficient transmission scheme.

Now OFDM is competing for "standard technology" status with the DS-UWB scheme. DS-UWB, which transmits data by pulses of energy generated at very high rates, uses a combination of a single-carrier spread-spectrum design and wide bandwidth to achieve high-quality wireless service at high data rates. As far as the chipset goes, DS-UWB proponents anticipate that they'll take the lead in chipset release and production.

Raves For The New Wi-Fi

According to Peter Thermos, founder and CTO of Palindrome Technologies and active member of IETF (Internet Engineering Task Force), IEEE, and ACM (Association for Computing Machinery), early user feedback reveals that the technology works well and that vendors make their products backward compatible to provide easier transition—including maintaining some of the proven features, such as security and ease of installation. Initially, there may be some wrinkles to iron out with product installation and performance, but eventually they will fade away. Thermos shared an anecdote: "A recent experience from a user who purchased a Pre-N MIMO Wireless Access Point revealed that the product firmware required an upgrade in order to improve the performance. In this particular instance, the new router performed worse than the existing 802.11g router. Luckily, the vendor had already issued an upgrade which shows prompt responsiveness since these new products are using a draft standard that has not been officially ratified."

Compatibility Issues

Manufacturers on each side of the debate have taken a wait-and-see



As a Draft 802.11n client device, the D-Link RangeBooster N 650 Desktop Adapter (DWA-547) delivers extremely fast wireless performance for desktop computers.



The Belkin Pre-N Router, featuring smart-antenna technology, provides faster data rates and better wireless coverage for larger homes and offices.



The Linksys Wireless-G Notebook Adapter with SRX400 (WPC54GX4) offers improved data transfer rates of up to 240Mbps while supporting a wide variety of security protocols such as WPA, WPA2, IEEE 802.1x, and WEP.

approach, hoping that their choice is the one left standing. Airgo claims the "802.11n Draft 1.0 does not provide for interoperability with nearby legacy 802.11b/g networks. Specifically, if 'Draft N' or 'N Ready' products are

released to market based on Draft 1.0 of the standard, they will severely degrade—or even disable—nearby 802.11b and 802.11g networks." What this means is that 802.11b/g products will not "play nice" with Draft 1.0 products, causing them to slow down as a result of taking a big performance hit under mixed wireless LANs. Says Gomez, "The 802.11n standard was supposed to come close to the theoretical limits of the transfer medium, or about 540Mbps. Some vendors do have a 'Pre-N' such as Belkin using similar technologies (spread spectrum multiple antenna), but none claim compatibility with the 802.11n specification. Perhaps it is because the Wi-Fi Alliance threatens excommunication for anyone who does."

According to Beau Beck, vice president of business development at Airgo, there aren't any "true" 802.11n products available at the moment because the standard hasn't been ratified yet. While Beck cautions about upgradeability of pre-N products, he also points out that Airgo's currently available third-generation "True MIMO" chipset supports data rates up to 240Mbps, almost three times the speed of other wireless technologies on the market today. Beck says that means Airgo leads the pre-N market place not only in market share but also in speed and range.

Jonathan Bettino, senior product marketing manager at Belkin, argues that while Belkin's current pre-N offerings will not be upgradeable, their next generation of products (available by press time) will be based upon the EWC (Enhanced Wireless Consortium) proposal for the future high-speed wireless standard. The EWC was established in 2005 to speed along the finalization of the 802.11n standard. As a result, Bettino contends that there is a "high likelihood" that this current spate of products, once ratified, will be upgradeable to true 802.11n status. According to an N-series Pre-Briefing Presentation provided by Belkin, the "IEEE 802.11n committee has recently agreed to investigate the possibility of adding a

600Mbps link rate to the current draft proposal. This will be achieved with the use of a 4x4 MIMO radio configuration. Availability of this feature is TBD. Belkin will be first to market this feature once it becomes available."

In the vacuum left by a failure to agree coupled with a growing demand for ever-faster Wi-Fi speeds, a number of "pre-N" or "MIMO" products are emerging again, carefully making no claim to adhere to anything other than an IEEE draft but offering the performance gains expected of 802.11n networks. There is nothing wrong with this, except that in general, the pre-N systems tend to be proprietary solutions (as were the 802.11g+ products). Currently, there are many 802.11g+ products available; however, the increase in their speed is generally achieved only if you're using the manufacturer's equipment across the board. If you use a branded 802.11g+ router and you want to run at g+ speed, you'll probably need the same brand of g+ Wi-Fi cards in your PCs and portables. The various brands generally revert to the published 802.11g performances when equipment is mixed.

Airgo has claimed it is the "first-to-market with 802.11a/b/g-compliant MIMO-enhanced chipset, software, and reference design solutions" with its True MIMO technology, and its technology has proved able to connect with a range of 802.11b and 802.11g adapters. Nevertheless, it is not the only vendor to offer draft-compliant products. This spring, D-Link expects to offer its D-Link RangeBooster N 650 series of wireless routers and network adapters, which will not only incorporate the latest 802.11n draft specifications, but will also mirror wired Ethernet networks' specifications. D-Link hopes that by offering its 802.11n products early, it will satisfy customer demands for longer wireless range, faster throughput speeds, and stability for heavy data traffic and bandwidth-intensive applications.

Another software manufacturer stressing its 802.11n draft compliance is

Broadcom. It claims that its software incorporates all the mandatory elements of the 802.11n draft specifications and will also be upgradeable once the standard is finalized. With 802.11n products becoming more available, Broadcom is striving to promote real-world interoperability among a variety of brands. In support of an industry-wide 802.11n interoperability test procedure, Broadcom is providing technical resources to the Wi-Fi Alliance. Like others in the 802.11n product market, Broadcom expects that the new standard will reduce the confusion and incompatibility issues created by the propriety solutions used in the wireless LAN market today.

The Future Of 802.11n

Wise corporate buyers will most probably be wary of any major investment in "pre-N" products and will

prefer to wait for the emergence of a fully agreed upon standard and a product line that supports it. There are two related issues: whether a particular supplier is subscribing to the version of the standard that will eventually emerge victorious and whether they have interpreted, or second-guessed, the final format of the winning standard and built products that will, in the long term, be standard-compliant.

It is important to note that pre-802.11n routers such as those from D-Link, Netgear, and Belkin are reported to be backward compatible with existing 802.11b/g technology because they support several modes of operation. Right now consumers' only recourse is to rely on backward compatibility in order to function effectively in today's multivendor environment. And while some chip makers are hesitant to comment on future



The Linksys Wireless-G Access Point with SRX technology offers up to triple the range and up to eight times the speed of a standard 802.11g wireless access.

compatibility issues, Mark Hung, director of marketing at Atheros (a developer of semiconductor system solutions for wireless communications products), was quick to point out in a telephone interview that, even though early incarnations of the older tried and true 802.11g had some issues with upgradeability and compatibility up until the final specifications were announced, 802.11n will most likely be different simply because there has been much negotiating and compromise over the past few years. Because differences were worked out early, he believes that draft-compliant 802.11n products using Atheros technology could very well be upgradeable, possibly via a software upgrade with the final, ratified specifications.

According to Gomez, "The basic technology is pretty much concluded, and the differences could be software-based. If that is the case, then yes, they could be upgradeable at a later time." However, without agreement on the specification, there is the risk that this will never be compatible, as happened with 802.11a, where the different manufacturers never were able to interoperate on that level. Nevertheless, all are compatible on 802.11b/g levels, so it is not such a big loss. For now, "It would be better for anyone contemplating a purchase of 802.11n to wait for the dust to settle. This should happen later this year," adds Gomez.

by Douglas Schweitzer, Sc.D.

Pre-802.11n Pricing & Availability

The following table provides a list of products that offer pre-802.11n performance.

Vendor and Product	Compatibility	Security	Price
Belkin Pre-N Wireless Notebook Card (F5D8010)	Compatible with 802.11g	Supports WPA	\$99.99
Belkin Wireless Pre-N Router (F5D8230-4) BLK F5D82304	Compatible with 802.11b/g	Supports WPA	\$149.99
Linksys Wireless-G Notebook Adapter with SRX400 (WPC54GX)	Compatible with 802.11g/b	Supports WEP, WPA, and WPA2	\$99.99
Linksys Wireless-G Broadband Router with SRX (WRT54GX)	Compatible with 802.11g/b	Supports WPA2	\$129.99
Netgear RangeMax 240 MIMO Wireless Router Model: WPNT834NA	Compatible with 802.11g/b	Supports WEP, WPA, and WPA2	\$179.99
Netgear RangeMax 240 MIMO Wireless Notebook Adapter Model: WPNT511NA	Compatible with 802.11g/b	Supports WEP, WPA, and WPA2	\$129.99

CHART COURTESY OF PETER THERMOS - PALINDROME TECHNOLOGIES

Fixed-Mobile Convergence

A Race Worth Watching

Your mobile phone rings as you're pulling into the office. You answer it, park your car, and continue your conversation as you walk into the building. Its brick facade blocks cellular signals, but you're not worried. When call quality starts to deteriorate, your phone will search for an alternate WLAN signal—and find it in your office's broadband Internet connection. You can continue your call unimpeded.

Shortly thereafter a call comes into your office. It rings on your desk phone and your mobile because both phones are turned on and within range. You take the call from your desk phone. Later you dial into your company's call control center to retrieve messages you stored from your mobile earlier in the day. With the flick of a button, you tell the control center to store several of the names and numbers permanently for office and mobile use. The center stores the information in its address book and then initiates wireless synchronization with the address books on your mobile phone, notebook, and desktop PC, ensuring the information is stored everywhere you will need it.

This portrait of connectivity is a common scenario of FMC (fixed-mobile convergence). With this technology, individuals can unite their mobile and business or home communications under a single phone number and voicemail system.

A combination of software, hardware, and wireless services lets users register multiple handsets (mobile, home, and/or business) with the system. Whenever the user is within range of a compatible, registered handset, he will be able to send and receive calls using his single, main number.

A Divided Highway

Proponents of FMC have been talking up the technology for years, with two approaches emerging. Mobile handset heavy hitters including Motorola, Nokia, and Sony Ericsson, and carriers such as AT&T Wireless Services, Cingular Wireless, and T-Mobile developed and are promoting a mobile-centric model, which involves a specification they hope will become a de facto standard for FMC.

The specification, UMA (Unlicensed Mobile Access), enables cellular (GSM [Global System for Mobile Communications] and GPRS [General Packet Radio Service]) transmissions to travel over broadband networks operating in unlicensed radio bands. In this scenario, dual-mode mobile handsets will be able to seek out public and private wireless broadband Internet networks (Wi-Fi and potentially WiMAX) and switch transmissions over to those networks to improve coverage or reduce airtime costs.

The use of unlicensed spectrum is key because companies that transmit over these frequencies do not pay their government's huge license fees. Channeling calls over these bands reduces the cost of airtime substantially, making mobile phones more attractive as a

full-time solution. Additionally, several cellular carriers already have expansive wireless broadband networks operating in the unlicensed bands. T-Mobile, with more than 27,000 Wi-Fi hotspots (6,806 U.S. locations and 20,913 roaming locations in 22 countries) is a prime example.

"UMA is set to have a profound impact on the mobile market," says Steven Shaw, director of marketing for Kinetio Wireless, a pioneer in the UMA industry. "UMA is the way that mobile operators embrace and leverage the cost and performance advantages of Wi-Fi to combat the threat from VoIP (Voice over Internet Protocol) service providers."

Broadband and VoIP providers, including a loose consortium of small players called MobileIGNITE (Mobile Integrated Go-to-Market Network IP Telephony Experience), support a different scenario. These providers want to route calls over their own networks (VoIP and/or wireline) whenever possible. Providers will equip customers with Bluetooth or Wi-Fi switching centers that use open-standards technologies such as SIP (Session Initiation Protocol) and IMS (IP Multimedia Subsystem) to route calls to a single mobile handset or a combination of handsets and devices. (SIP is a signaling technology also used in instant messaging; IMS is a networking technology that can bridge the gap between circuit-based [wireline] and packet-based [Internet] systems, routing calls to and from both.)

When traveling, your mobile handset roams on cellular networks, using minutes your company obtains from a mobile provider (its own or partner carriers). In some scenarios the phones can also roam onto Wi-Fi and potentially

WiMAX networks for additional low-cost coverage.

Road To Riches?

The distinction between these approaches may sound like a fine one because the processes are similar. Additionally, both approaches include an extended range of services including voicemail, call forwarding, blacklists and whitelists, call conferencing, text messaging, and more. However the difference is significant to the players involved because the initiating carrier (who retains control of the call), will collect the lion's share of usage fees.

Cellular hardware vendors are pursuing FMC aggressively, which isn't surprising considering ABI Research predicts the market for fixed-mobile handsets will reach 100 million annually by 2009. Nevertheless, traditional telephone companies may have the most at stake. The wireline customer base is dropping; Market research firm Research And Markets predicts wireline usage in the United States will drop 8.5% by 2009.

These firms need to stop the hemorrhaging of their customer base by offering consumers a new value proposition.

Revving Up The Engines

With excitement for FMC building, some companies aren't waiting for a consensus to emerge but instead are engineering solutions now. About this same time last year, BT (British

Telecom) launched BT Fusion, which is a converged service for home users. BT expanded the service to businesses earlier this year.

In March, U.S. telecommunications firm Avaya unveiled a mobile phone as part of its upcoming one-X IP telephony solution. The solution integrates Nokia S60 phones with Avaya's software-based control center. Users can send, receive, and process calls from the mobile unit, a fixed unit, or their notebooks. On the mobile front, Israeli cellular carrier MiRS Communications is rolling out a converged (cellular and VoIP) system this year that incorporates IMS architecture, a VoIP server, and a gateway switching center.

Under Construction

A dearth of compliant phones has held up full integration with Wi-Fi (for both in-office and roaming). As BT spokesman Jon Carter noted at the time of the BT Fusion announcement, "The Wi-Fi phones just aren't out there yet." However, that obstacle is evaporating. Last year Nokia announced it used UMA to complete live voice and data calls between a mobile unit and a wireless LAN in a Nokia Solutions Experience Center in the United States. Around the same time, Nokia and Motorola debuted handsets (available this year) that support seamless handoff to Wi-Fi,



Avaya partnered with Nokia to incorporate its communications center software into the Nokia E60.

and Nokia has also announced a SIP and IMS-compliant VoIP Server that works with fixed and mobile connections.

At CTIA Wireless 2006, the trade show of the Cellular Telecommunications Internet Association, Samsung's t709 won second place in the mobile phone/camera phone category. The device, which can hand off between Wi-Fi and mobile networks seamlessly, also sports a 1.3-megapixel camera, MP3 and video players with stereo speakers, and EDGE (Enhanced Data For GSM Evolution) capabilities.

"I expect the earliest folks to get something started in the next few months—within a year, at least," says Frank Hanzlik, managing director of Wi-Fi Alliance. (The Wi-Fi Alliance is a nonprofit Wi-Fi support organization currently developing certification specifications for FMC handsets.) "For mainstream or broad



Avaya's converged solution enables users to send, receive, and process calls not only from a mobile or fixed phone, but also from notebooks (within range of the corporate network).



“The biggest challenge for notebooks to have wide area support is coverage. Intel will be pushing mobile WiMAX, but it's going to take a long time to build out any sort of ubiquitous WiMAX infrastructure.”

Frank Hanzlik

MANAGING DIRECTOR OF Wi-Fi ALLIANCE

appeal, I think we're looking in the three- to five-year time frame.”

PC Power

For notebook users a converged solution may be even farther out. Dell recently launched its Latitude D620/D820 notebooks, which incorporate Bluetooth, Wi-Fi, and optionally high-bandwidth mobile (CDMA [Code-Division Multiple Access] EVDO [Evolution Data Optimized] or GSM HSDPA [High-Speed Downlink Packet Access]) cards. Similarly, the Lenovo ThinkPad T60, X60, and Z60 offer Wi-Fi plus optional integrated CDMA EVDO and GSM HSDPA. However, none of the notebooks can switch from Wi-Fi to cellular networks on the fly.

When asked about the possibilities that notebooks would also offer seamless converged connectivity, Hanzlik says,

“The potential is certainly there. The core technology is there. If there are scenarios where it makes sense, it will happen.” Hanzlik has a few caveats, however. “The biggest challenge for notebooks to have wide area support is coverage. Intel will be pushing mobile WiMAX, but it's going to take a long time to build out any sort of ubiquitous WiMAX infrastructure.”

A Converged Future

Despite the spate of recent product announcements and trials, users have plenty of time to make a decision regarding FMC, largely because providers are still fine-tuning their offerings. “A lot of it is dependent on the carrier strategies and how they respond to their subscribers,” Hanzlik says. “Will carriers want their systems to be not only

seamless, but also transparent, or will they want users to know when they are moving from the home zone to the outside zone? What will users expect to pay for minutes that cellular carriers route over the subscriber's own broadband connections?”

Katja Ruud, principal analyst at Gartner, is convinced that convergence is coming to stay. “In the future, everyone will have a single mobile terminal for all their telephony needs. They will be reached under a single number anytime and anywhere. People will need only one voicemail system and receive a single bill for all services they use.” Recent studies appear to concur. In 2004, Avaya conducted a survey of 600 business professionals in the U.K., United States, and other countries regarding their communication preferences. Over half of respondents indicated they would prefer a single, combined device that can handle business and personal calls. Furthermore, a 2005 survey by Boston research and consulting firm Chadwick Martin Bailey found that 23% of IT managers have already allocated budget for FMC.

by Jennifer Farwell

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BlackBerry Goes To China

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by Cal Clinchard

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Go Paperless

Portable Scanners Make Organization Easy When You're Away From The Office

Think for a moment about the number of business cards, papers, and brochures you bring home from a business trip. If your trips are anything like ours, your briefcase may be busting at the seams after you've been on the road for a week. But throwing away all of those contacts and valuable information isn't exactly what we'd call wise either.

In addition to the mass of papers, you'll need to insert contact information into an address book to really make use of all of the phone numbers and email addresses you receive. Unfortunately

this data entry process can take a significant amount of time.

Although you may not have all of the same comforts while traveling as you may enjoy in the office, there are devices that can make your time on the road more productive. The most obvious is a laptop. Because many of us already travel with a laptop, let's consider other ways you can maximize productivity when you are on a business trip. Have you ever considered packing a scanner? Probably not.

One reason we may not think about bringing a scanner on a trip is likely due to the fact that we don't see very many

people doing it. In addition some people have the misconception that scanners are large and bulky. Traditional scanners are somewhat large and hard to travel with, but portable models make a great travel companion. If you think about the many ways in which you can put a scanner to use while traveling, it makes sense to include one on your packing list.

Realizing not every scanner is created equal and that some scanners are designed for specific purposes, we put three portable scanners through our tests to see if they can handle the task of keeping us organized and free of paper.

NeatReceipts SCANALIZER (\$199.95; www.neatreceipts.com)

Measuring roughly 1.3 x 10.8 x 1.6 inches (HxWxD) and weighing about 11.3 ounces, the NeatReceipts SCANALIZER is one of the larger scanners in this roundup. But it's still very portable and should fit comfortably in your briefcase. The SCANALIZER supports a 600dpi.

The scanner comes with a protective drawstring bag, but there's no room inside for the included USB cable. The scanner also has a holder with a hidden compartment for extra storage for desktop use and a wall mount. NeatReceipts also includes cleaning and calibration sheets to ensure accuracy when scanning your material.

Probably one of the biggest strengths of this scanner is its included software. The NeatReceipts software is specifically designed for scanning receipts and business cards. Although the included software isn't as good at scanning regular documents, we used the scanner and camera wizard in Windows XP with a letter-sized document and had reasonably good results.

Because the NeatReceipts SCANALIZER is targeted at the business traveler desiring the ability to scan receipts and business cards while on the road, we tested the NeatReceipts software with 40 business cards. The SCANALIZER scanned and recognized our cards in approximately 13 minutes. (Keep in mind that the speed of your computer will influence the recognition speed.) As a whole, the business card recognition software was very accurate. For integration with other software, you can export the NeatReceipts business card database to a variety of formats including vCard, PDF, and RTF (Rich Text Format).

To test the receipt recognition capabilities, we scanned an assortment of receipts from local retailers and nationwide chains. We found the recognition software was relatively accurate; we only had to make a few corrections. For expense reports, NeatReceipts calculates the total amount of billable expenses. You can separate receipts for different billing purposes or to exclude nonreimbursable items. NeatReceipts even recognized one local restaurant that is limited to the state of Nebraska.

After using the NeatReceipts software with a handful of receipts and testing the included expense report wizard, we were impressed with how easy and fast it was to create an expense report. You can export these reports and other documents from NeatReceipts to PDF and a variety of other formats.

For instances in which you must rescan a document, you can do so using the rescan command. We were pleased to find that even when we jarred a document or inserted it into the scanner rotated or upside down, the scanner still recognized the document with acceptable accuracy.



Planon DocuPen RC800 (\$299.99; www.planon.com)

The Planon DocuPen RC800 weighs only 1.6 ounces and can scan a letter-sized piece of paper in color. The scanner has a range of 100 to 400dpi and looks like a giant pen, with approximate measurements of 0.5 x 8.9 x 0.5 inches.

Unlike the cases that shipped with the other portable scanners we reviewed, the DocuPen's included case is extremely tight, to the point that you almost feel like you could break the scanner if you don't carefully place it in the case. Although the scanner doesn't come with hardcopy documentation, the digital instruction video and other digital documentation were very helpful.

Because the user controls the speed with which the DocuPen scans, we were particularly concerned with our abilities to keep the scanner straight and at an even speed while scanning. Thankfully the DocuPen has four unidirectional rollers on the bottom of the scanner that guide it in an even, straight line.

What's particularly interesting about this scanner is it doesn't require a computer to operate. Using an internal rechargeable battery and 8MB of memory (upgradeable with a separate TransFlash card), you can scan documents from any location and upload those documents to your computer at a later time using the mini-USB connection port on the scanner.

The DocuPen comes with PaperPort software that lets you group multiple scans into a single, multipage file. On a full-page scan, the quality from the DocuPen is about the same as that of the NeatReceipts scanner.



NEWGEAR

The Ultra-Mobile Q1



UMPCs (Ultra-Mobile PCs) have created a lot of buzz recently. Samsung's new Q1 (\$1,099; www.samsung.com), available from Bestbuy.com at press time, gives you laptop functionality in a compact and lightweight design, weighing less than two pounds. The Q1 has a 7-inch screen with an 800 x 480 res-

olution. This UMPC can surf the Web, watch movies, and navigate the streets using the included GPS navigation system and map. With its 40GB hard drive, 900MHz Intel Celeron M ULV processor, 10/100 Ethernet, 802.11b/g wireless, Bluetooth, and Windows XP Tablet PC operating system, the Q1 gives you great computing power on the road.

by Jennifer Johnson

NEWGEAR

Better Berry Goodness

A new berry comes to market—Research In Motion recently introduced the 8700g (\$399.99; www.blackberry.com), the latest incarnation of this do-everything device. In terms of communication, the 8700g isn't lacking options. You can email, phone, or SMS your cohorts, and the device also supports instant messaging from Yahoo!, MSN, and AOL. On the hardware side, the 8700g includes Intel's XScale process, 64MB of integrated flash memory, and 16MB of SDRAM. RIM updated the 320 x 240, 65,000 color monitor to provide a clearer picture, which might come in very handy for viewing all those scaled-down Web pages. In addition, the monitor is light-sensitive and automatically adjusts its brightness depending on your current environment. Other vital features include Bluetooth compatibility, speakerphone, and a full QWERTY keyboard.

by Nathan Chandler



Plustek OptiCard 820 (\$169; www.plustek.com)

The Plustek OptiCard 820 is designed specifically for scanning business cards and other small documents that have a maximum width of about 4.25 inches. One of this scanner's strengths is the included software package with Presto! ImageFolio 4, Presto! Mr. Photo 3, and I.R.I.S. Cardiris 3.5 BCR. With these programs you can scan a variety of business cards and other small documents such as pictures.

The OptiCard 820 can scan color documents with an optical resolution up to 600dpi. With a relatively light weight of 7.4 ounces and a size of approximately 1.5 x 6.9 x 2.4 inches, the scanner is easily portable. Karen Ku, president of Plustek, told *PC Today* the OptiCard 820 is "perfect for the business traveler who needs to scan and copy business cards in a quick and mobile manner. The OptiCard reads up to 50 different languages and easily transports business cards into public contact databases, all with two simple buttons: Scan and BCR."

For protection while traveling, the OptiCard 820 comes with a small drawstring carry bag large enough to hold the scanner. Another feature making this scanner easily portable is its use of a single USB cord for power and connectivity to your computer.

Although the scanner does not come with hardcopy documentation, you'll find adequate information on the accompanying CD. Like the NeatReceipts SCANALIZER, the OptiCard 820 also includes calibration and cleaning sheets.

To put the scanner through its paces, we scanned 40 business cards to test the BCR software. The software was fairly accurate, and we liked that we could see a picture of the scanned card and the converted text on a single screen. The



OptiCard 820 took approximately 14 minutes to scan and recognize our 40 cards; of course, part of this timing is dependent upon the speed of your computer. When we first used this software and scanner, the scans were too light to recognize, but we changed a few settings and then obtained acceptable results.

We liked how the software automatically detected direct phone numbers and placed them in the Phone 1 position of

our address book, with alternate numbers in Phone 2 and subsequent positions. In our experiences with the software, the only downfall we noted was the difficulty we had trying to rescan a business card in place of an existing scan. We realized that to do this, we needed to delete the existing business card and re-create the entry. As a whole, we were pleased with the results the OptiCard 820 gave us.

The Verdict Is In

Although we couldn't cover all portable scanners in this article, if we were in the market for one of these portable

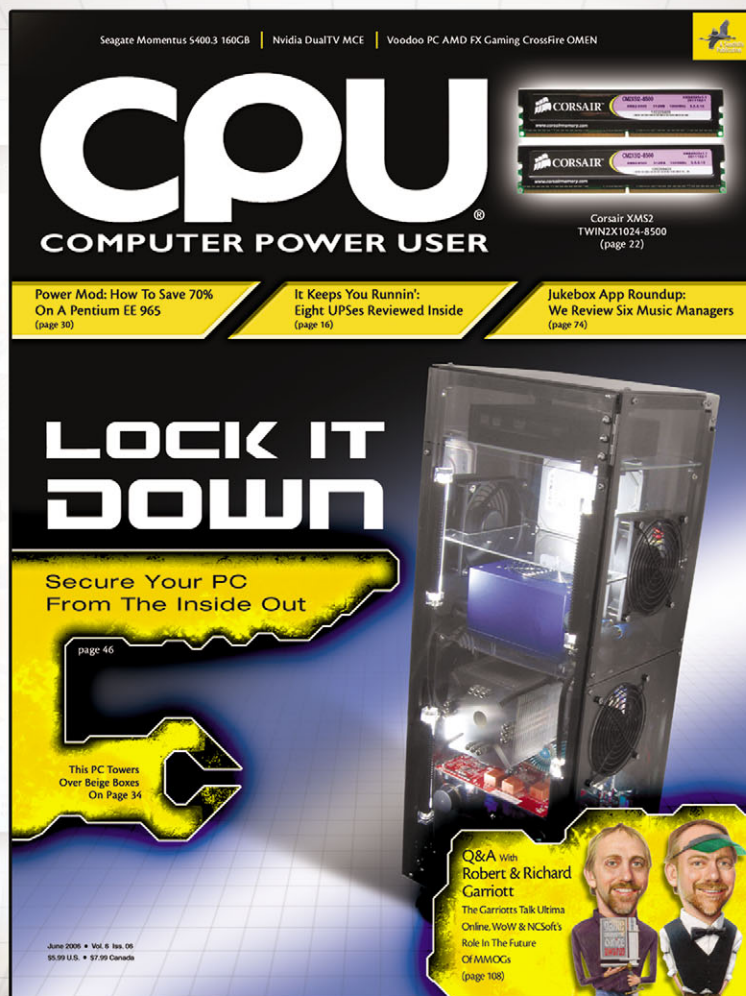
scanners, we'd choose the NeatReceipts SCANALIZER. The SCANALIZER accurately recognized a variety of documents and included a powerful software

package that provides some additional functionality unmatched by the other scanners we compared.

by Jennifer Johnson

Hardware Without The Plug!

When you're unplugged, pick up an issue of *CPU* and plug into the world of high-tech computing. Each month *CPU* brings you a functional mix of hardware reviews, information on modding, the latest and greatest software, and the opinions of some of the industry's leading columnists.



Pick up the latest issue of *CPU* on newsstands now!
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Palm's Best

The Palm Z22 & Palm TX Compared

When Palm's Pilot came out in 1996, it became an instant status symbol. Today, you don't need to be a professional to justify owning a PDA. Palm offers a range of models for users with different budgets. We'll look at Palm's entry-level unit and one of its high-end models to show you what each has to offer.

Palm Z22

Palm's Z22 focuses on personal organization. It doesn't play music or video clips, but it can display digital images and organize your personal information and costs less than \$100.

Specifications

OS: Palm OS 5.4.

Memory: 32MB of nonvolatile memory with 20MB free for applications and data.

Processor: 200MHz ARM (Advanced RISC [reduced instruction set computing] Machine)-based.

Display: 2.5-inch CSTN (color supertwist nematic) display (160 x 160 resolution; 4,096 colors).

Battery Life: One week on a single charge.

Communications: USB.

Multimedia: Digital images.

Software: Palm Addit, AstraWare Crazy Daisy, Power By Hand eReader, Handmark Mobile DB, Palm Photos, PowerOne Calculator, Splash-Data SplashShopper.

Size: 4.06 x 2.7 x 0.6 inches (HxWxD).

Weight: 3.4 ounces.

Hardware

The Z22 lacks the multimedia and networking capabilities found in high-end models such as the Palm TX. Compared to the TX, the low-resolution display makes images, icons, and

text look jagged and pixilated. The backlit display disappears entirely in bright sunlight.

The Z22 has 32MB of memory, but it uses 12MB for the OS and core applications. We did appreciate the fact that Palm used nonvolatile memory for the Z22. That means you won't lose any data if your battery dies while you are using the device.

Battery Life

As much as we disliked the display, we loved the Z22's battery. You can easily go



The Z22 features a very clean, almost iPod-like design.



Not many extras at all. The top of the Z22 features a mini-USB connector and a slot for stylus.



a week without recharging it, and maybe more. The smaller display and nonvolatile memory almost certainly improve the battery life. The Z22 includes a single mini USB connector that accommodates a USB cable or an AC adapter.

Software

The Z22 comes with the basic Palm apps including Calendar, Contacts, Memos, and Tasks. The Z22 also includes Addit, which lets you select applications you want to try or buy. Addit downloads selected applications during HotSync.

The Z22 includes a Palm-branded version of Photos for organizing and displaying digital images on the Z22. Images, however, look washed out and jagged on the low-grade display.

Overall

Although we didn't care much for the display, we loved the battery life, the nonvolatile memory, and most of all the price. At \$99 the Z22 is a perfect entry-level PDA for someone who's looking to dump his bulky paper organizer.

Palm TX

The only difference between the Palm TX and Palm's high-end LifeDrive is that the TX doesn't include 4GB of storage. The TX, however, has many of the same multimedia and networking features included with the LifeDrive.

Specifications

OS: Palm OS 5.4.

Memory: 128MB of nonvolatile memory with 100MB free for applications and data.

Processor: 312MHz ARM-based

Display: 3.8-inch transreflective TFT (thin film transistor) display (320 x 480 resolution; 65,536 colors).

Battery Life: About 5 days of moderate use.

Communications: USB, Wi-Fi, and Bluetooth.

Multimedia: Digital images, audio, and video.

Expansion: SD card.

Software: Palm Addit, Palm Blazer Web browser, Palm Bluetooth Manager,

DataViz Documents To Go Professional Edition, Palm Media, Power By Hand eReader, NormSoft Pocket Tunes MP3 Player, Palm SMS (Short Message Service) messaging, Palm VersaMail email client, Palm Wi-Fi Manager, Hands High Software WiFile LT.

Size: 4.76 x 3.08 x 0.61 inches (HxWxD).

Weight: 5.25 ounces.

Hardware

The Palm TX is larger and heavier than the Z22, but it's worth the extra heft. The TX includes multimedia and networking capabilities as well as a bigger, brighter, high-res display. The transreflective TFT display is bright indoors and remains readable in sunlight.

The TX supports Bluetooth for connecting to other Bluetooth-enabled devices including notebooks and cell phones. Wi-Fi support lets you connect the Palm TX to 802.11b wireless access points. After connecting to the Internet, you can send and receive email using VersaMail or surf the Web using the Blazer Web browser.

The Palm TX uses Palm's Universal Connection Slot, so the device is compatible with Palm's optional cradle. nonetheless, we were a little disappointed the TX didn't come with its own cradle. An extra \$49.99 is a bit pricey for a cradle. Then again, the USB cable is much easier to pack.

Battery Life

Battery life is the one area where the Z22 manages to beat the TX. We ran a continuous slideshow on both models and got an extra hour or two from the Z22. According to Palm, you'll get about five days of battery life from the TX with



The Palm TX includes a much larger, better quality display in addition to advanced networking and multimedia capabilities.



On the top of the Palm TX, you'll find an SD slot for extended storage and a stereo headphone jack in addition to the recessed power button.

moderate use, but you should expect to recharge every day or so if you use the TX's multimedia or networking features.

Software

The TX also comes with a lot more software than the Z22. DataViz's Documents To Go lets you edit or create Microsoft Office documents (including PowerPoint presentations). Pocket Tunes is a great audio player, and Palm's Media software lets you view images and watch video clips on your TX.

Overall

The Palm TX is a formidable package, but at \$299 it's also significantly more expensive than the Z22. Nonetheless, if you need networking and multimedia capabilities, as well as a better display, the TX is the way to go. **by Chad Denton**

OQO Model 01+ Tablet Edition

PC Power In The Palm Of Your Hand

OQO Model 01+ Tablet Edition

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Handhelds are great, but they really can't compete with the notebook in the productivity department. Sure you can send emails, browse the Web, or plug in flash drives to save all sorts of stuff, but you still need to sync your handheld whenever you find yourself at your main computer. Now imagine if your handheld *was* your main computer.

The OQO model 01+, created by a company with the same name, aims to be exactly that. Think of the OQO 01+ Tablet Edition as a full-blown tablet PC that you can stow in a jacket pocket. The OQO 01+ is a very pocketable 5 inches long, 3.4 inches tall, and just under an inch thick. The unit features a bright, full-color 800 x 480 touch-sensitive display, which looks good in almost any lighting conditions thanks to a built-in ambient light sensor that adjusts brightness on-the-fly. Slide the screen upward to reveal a 57-key QWERTY

keyboard and an eraser head-style TrackStik pointing device. The unit has a built-in FireWire and USB ports, a stereo headphone jack, a speaker, and a microphone.

Under the OQO 01+'s sleek metallic anodized skin, you'll find a 1GHz Transmeta processor, a 30GB hard drive, and 512MB of RAM. For video and graphics, the OQO 01+ employs a 3D-accelerated graphics processor with 8MB of dedicated video memory. You can't exactly run modern games on the OQO 01+, but Web graphics and compressed videos look decent and play fluidly.

The OQO 01+ includes an integrated Bluetooth and an 802.11b Wi-Fi adapter that'll keep you

connected when you're on the go. The unit features a standard lithium polymer battery that can last up to three hours. The back of the unit also features an LED battery life indicator. When you're at a desk, you can use the included docking cable for connecting the OQO 01+ to a 1,280 x 1,024 VGA monitor,

FireWire device, USB device, wired Ethernet, or an audio system.

OQO designed their flagship model 01+ with the road warrior in mind. The shell is sturdy and looks like it was designed to take a beating. Despite this, you'll definitely want to keep the OQO 01+ in its protective pouch when you're not using it to keep the screen pristine. The unit features a multifunction thumbwheel, which lets you quickly scroll Web pages and navigate large documents. The OQO 01+'s blocky rectangular housing seems to sacrifice ergonomics for style, but the same cannot be said for the keyboard and mouse button layout, which I found easy to use and intuitive. The device's 30GB hard drive is shock-mounted to resist damage if dropped.



This handheld's keyboard is surprisingly comfortable to use.



The OQO 01+ is a true pocket PC.

Despite the striking exterior and impressive specs, this unit's most attractive feature is actually on the software side. With Windows XP Tablet PC Edition 2005, the OQO 01+ can do everything its big brother the notebook can do and more. You'd be crazy to toss your desktop in favor of a typical handheld, but the OQO 01+ may just be the atypical handheld that convinces you to take the plunge. Now you just have to come to terms with the OQO 01+'s \$2,000+ price tag.

by Andrew Leibman

Take Your Tunes With You

This Adapter Lets You Play iPod Playlists Over Your Car Stereo

Sonnet Technologies PodFreq mini
\$49.95 • www.podfreq.com



I'll admit it—I'm spoiled. I have a MINI Cooper with an iPod adapter built right into the glove compartment, which makes listening to my iPod mini while scooting around town an utter joy. I can move through my playlists with the radio controls on the steering wheel without taking my eyes off the road.

My other car, though, is a Plymouth Neon that has neither bells nor whistles. And for a long time, that meant no iPod while driving. Enter Sonnet's PodFreq mini, which lets iPod-owning drivers listen to their tunes in any car with an FM radio.

The PodFreq is a dock that transmits your mini's music to an empty frequency on your FM dial. Simply slide your mini into the dock, raise the antenna, select a frequency on your dock (it's a digital display, so there's no messing with an analog dial), and tune your radio to the same station. You flip through your songs and playlists as you otherwise would via the mini's Click Wheel. The PodFreq draws power from your iPod, so it doesn't require batteries, but there's a charger included that you can plug into your car's cigarette lighter so you don't zap your iPod's battery on a long trip.

On the side of the dock are a mini-USB 2.0 port and a FireWire port. The PodFreq includes a mini-USB 2.0 cable so you can use the device as a dock to transfer music and other files to and from your computer. (You're on your

own for the FireWire cable.) Sonnet also offers PodFreq models for the full-sized iPod and its svelte little counterpart, the nano.

Compared to the setup the MINI Cooper offers, the PodFreq mini is clunky. In cars where there isn't a whole lot of room up front, the dock can be a bit unwieldy. Also, you have to be

careful to tuck the whole device away when you're not in the car so as to not encourage theft. But given the choice between a bit clunky and unwieldy and most of what's playing on the radio these days, I'll deal with clunky. While I'm driving the Neon, anyway.

by Sally Marek Curran

NEWGEAR

XtremeMac Iconz

Nothing is as incongruous as a cute lil' iPod nano with an angry Darth Vader on it. Iconz are funky sheaths that slip onto your nano to protect it from scratches (\$24.95; www.xtrememac.com/photos/cases/nano/iconz.php). The plastic is thinner over the wheel area, so there's no loss of sensitivity. Meanwhile, the Iconz Sport line lets you grace your nano with NBA and MLB team logos and colors. We got the Pistons and the Cardinals. And 5G iPod with video owners, don't worry—XtremeMac has your baby covered with Iconz, too (\$29.95). The Simpsons, Tweety, Batman... express thyself.

by Marty Sems



Access Your Desktop From The Road

I'm InTouch Lets You Make The Connection

01 Communique I'm InTouch

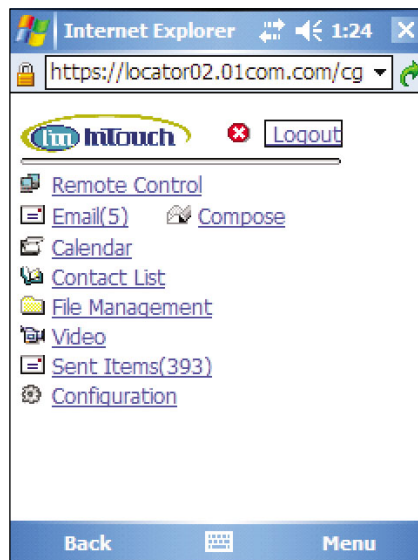
Free 30-day trial; full version starts at \$9.95/month • www.01com.com

Web-enabled mobile devices are great. You can use them to read the news, access Web mail, or track the status of your next flight. But if you are interested in kicking your mobile device up a notch, consider 01 Communique's I'm InTouch (www.01com.com).

I'm InTouch works with Web-enabled cell phones, Palm devices, Pocket PC handhelds and smart-phones, BlackBerry devices, and PCs. It is especially useful if you have a Pocket PC handheld with Windows Mobile, because I'm InTouch offers the most features for this platform. I tested I'm InTouch on my HP iPAQ rx1955 Pocket PC with Windows Mobile 5.0.

Make A Connection

I'm InTouch uses your mobile device's Web browser to access a host computer, for example, a computer in your home office or your computer at work. What you can do with that access depends on your mobile device. With most devices, you can access Microsoft Outlook and Microsoft Outlook Express email, calendar, and contact functions. There's also a file manager that lets you view and download files from the host



After connecting to the host computer, my Pocket PC displays the main I'm InTouch screen. The Web-based interface is clean and easy to use.

computer directly to your device. BlackBerry users can attach files on the host computer to their BlackBerry emails.

If you have a Pocket PC handheld, you can also use the cool remote control feature, which gives you full access to your host computer's applications, data, and functions. You can open Microsoft

Word (not the scaled-down Pocket Word) and directly edit a document on the host computer.

Installation and setup. Installation on my home-office Windows XP computer went off without a hitch. After downloading the software, assigning a name to the computer, and defining security passwords, an icon for I'm InTouch displayed in the System Tray. My host computer was ready to go.

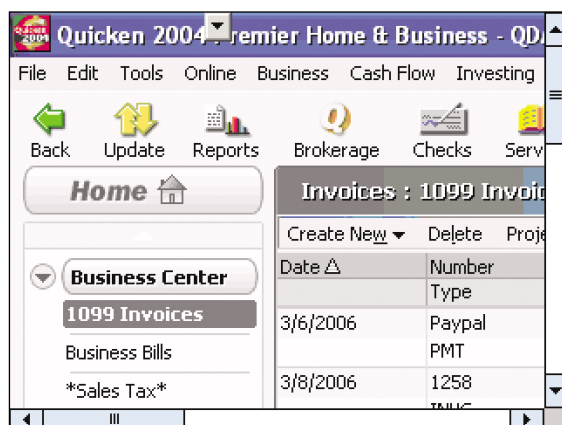
To access the host computer from a mobile device (or a computer), simply use a Web browser and go to I'm InTouch's Remote Access Login page at <https://locator.01com.com>. The page prompts you for the host computer's name and your username and password. You also define what function you want to start upon connecting.

File viewer. After connecting my Pocket PC, I selected the option to view files. I could navigate my home-office computer's hard drive. But when I tried to view a file, an error message displayed. I learned that I needed optional software on my home office computer to enable file viewing. Luckily, I was testing the software in my office, so I could easily right-click the I'm InTouch icon in the System Tray and select the option to install the file viewer capability.

With the viewer installed, I could view files from my home office computer on my Pocket PC. Reaction time was good, and the files rendered quite well. Note that this is strictly a file viewer; you cannot modify files. You can use the feature to download the files to a Pocket PC or other PC.

Remote control. I selected the option to control my home office computer's Desktop, but this function would not work on my iPAQ. After troubleshooting for quite a while on my own, I contacted technical support via email. A quick reply explained that the current I'm InTouch release doesn't support remote control features in Windows Mobile 5.0. However, support personnel emailed workaround files and instructions that solved the problem.

The remote control option is definitely the best feature of this software.



With the Remote Desktop Viewer loaded on my Pocket PC, I opened my home office computer's Quicken software and entered expenses.

If you use firewall or Internet security software on the host computer, you may need to modify it to accommodate remote access. For security, the software uses encryption, and usernames and passwords

are stored on your host computer, not 01Communique's servers.

I'm InTouch costs \$9.95 per month or \$99.95 for a one-year subscription. This lets you access one host computer. Pricing plans are also set for additional host computers, and a free 30-day trial version is available.

Best For Windows Mobile Pocket PCs

If you have a Windows Mobile Pocket PC handheld and would like to access your home computer using the device, I'm InTouch is worth a try. The Remote Desktop Viewer is very handy and works well, after you get it set up. Notebook users can also benefit from this feature. I'm InTouch does not include the Remote Desktop Viewer for Palm OS devices, BlackBerry devices, cell phones, Pocket PC, or smartphones. However, these devices can use the File Viewer to display and download files located on the host computer. The File Viewer is not as powerful as the Remote Desktop Viewer, but it might be useful if you need a file when you're away from the office.

I do think that 01 Communique should be clearer about the current state of Windows Mobile 5.0 support in the software. If your device uses Windows Mobile 5.0, be sure you get the workaround from technical support personnel before you try the Remote Desktop Viewer.

by Carmen Carmack

Not only could I view my home-office PC's Desktop, but I could also load files, open them in their native application, and edit them. My home office computer performed the actual work, so I did not need to download files to my iPAQ to view them. And I had full access to application features and functions as if I was working at the computer in my home office. Response times were good, and the viewer gave me options to access my Pocket PC's keyboard, change the screen orientation, and more.

Email, contacts, and calendar. After logging out of the Remote Desktop Viewer, I tried the email, contacts, and calendar functions. All worked as promised, presenting a clean, text-based interface for adding, deleting, and modifying content. Note that any changes you make directly affect your host computer, so everything integrates in real time on the host system, eliminating the need to synchronize.

Other goodies. For mobile devices, I'm InTouch also offers Web cam viewing and email notification. If you are using your PC or notebook to access the host computer, you can also set up remote printing and remote demos for as many as 10 guests.

Requirements and cost. To use I'm InTouch, your host machine needs an always-on high-speed Internet connection. Of course, you must also establish an Internet connection with your mobile device. I'm InTouch works with the mobile device Web browsers listed on 01 Communique's Web site.

NEWS BRIEF

Windy City Plans For Citywide Wi-Fi

Chicago residents are set to brace for a wireless storm, as the city's chief information officer recently invited equipment suppliers and service providers to vie for citywide Wi-Fi contracts. At last count, JiWire listed a whopping 519 hotspots in Chicago, which means that even without ubiquitous Wi-Fi, you're likely to find a hotspot without walking very far. Of course, wireless initiated by the city would mean that you won't need to be sitting in a Starbucks or another retail-based establishment to gain access.

According to a report in the *Chicago Tribune*, the city's outgoing CIO, Chris O'Brien, told aldermen last year that citywide Wi-Fi installation would cost \$18.5 million and that 7,500 small antennas would need to be installed on light poles around the city, which would amount to an antenna about every two blocks.

Chicago Tribune blogger Steve Johnson suggests that the city should keep monthly fees around \$10 or charge \$1 per session instead of charging \$5 per session. He also suggests that charging nothing to lower-income residents could work, writing that "we are approaching the point where providing [Internet access] is a civic obligation."

Indeed, it will be interesting to see how major cities market and implement the technology, particularly in areas with varying income levels.

by Christian Perry

Take A Fee Ride

Pocket Express Is Worth
The Price Of Admission

Handmark Pocket Express Third Edition

Free; \$6.95/month for premium bundle • www.handmark.com

Sure, you can tap open your WAP Internet browser and thumb a whole bunch of keys to bring up all sorts of useful information on your BlackBerry, Palm, or Windows Mobile device. But what if there were an easier, more streamlined way to get the latest news, stock reports, sports scores, weather forecasts, maps, and other information right when you need it? Would you be willing to pay a nominal monthly fee (or a discounted annual fee) for the convenience?

Before I tried Pocket Express, I didn't think so, but I quickly changed my mind. And that was a few weeks ago when Handmark was charging \$6.95 per month or \$69.90 per year for the entire service. Now you can get as-it-happens AP news (complete with photos), weather, and sports for free; if you subscribe to the bundled service, you get a slew of other goodies. The premium bundle includes 411 Directory Search (which works well in finding people and businesses), Showbiz (for entertainment news), a dictionary, and a service that provides accurate (albeit tiny) maps and directions.

You can download the complete Pocket Express to your computer, install it, sync with your device, and try the service free for 14 days. After the trial period ends, the bundled premium services cease unless you subscribe, which you can do directly from your device. You must enter your ZIP code to customize local information (such as weather), but that's the extent of the on-device setup. Plenty of



The main Pocket Express screen (right) lets you quickly tap (with fingertip or stylus) the channel of your choice. And when you need instant help getting from one place to another? Pocket Express offers maps (left) as well as step-by-step driving instructions.

other preferences are available (such as identifying your favorite sports teams, whether you want to update the content automatically or manually, and whether your device uses Wi-Fi), but I bet most users will simply install Pocket Express, tap the channel they want, and enjoy.

Pocket Express lets you update one channel at a time or all at once by simply tapping the Update button. The time it takes to update all channels takes 20 seconds or more, depending on how long it has been since the previous update and the current data connection speed.

I'm very impressed with the breadth of content, the way in which Pocket Express organizes the content for easy access, and the depth of information. In the AP News channel, for example, you can tap a news headline to view the story's first paragraph, tap again to see the entire story, and again to see the accompanying photo. In Movie Showtimes you can not only see what's playing nearby and when, but you can also read complete movie reviews. This multilevel approach applies to the Weather and Sports channels, as well.

Pocket Express works with most Web-capable smartphones and PDAs, but check the Handmark Web site for details. There you'll also find well-written FAQs and technical support information, and you just might run across a special offer because Handmark runs promotions now and then.

by Calvin Clinchard

How'd We Take Those Screen Shots?

When you have a computer problem, it's nice to be able to take a screen shot and pass it along to someone who might be able to solve your problem. And if you find yourself on the other side of that equation, having to explain to someone how something on a computer works, it's great to be able to show them a visual of each screen. The same goes for your mobile device. At *PC Today* we use PdaReach 1.53 from June Fabrics (\$24; www.junefabrics.com) to grab images from Palm OS-based devices, including the Treo 650 used for the Pocket Express review. Attach your device to your sync cable, activate PdaReach, and a live image of the device and its screen appear on the computer monitor. You can click to actually control the attached device or take a screen shot as you normally would on your PC.

Make Your Movies Mobile

Convert Video For Portable Devices

MP3 players have expanded far beyond their original purpose of playing music and into the realm of true multimedia capability. To reflect their ability to play video as well as music, these devices are more accurately referred to as PMPs (portable media players).

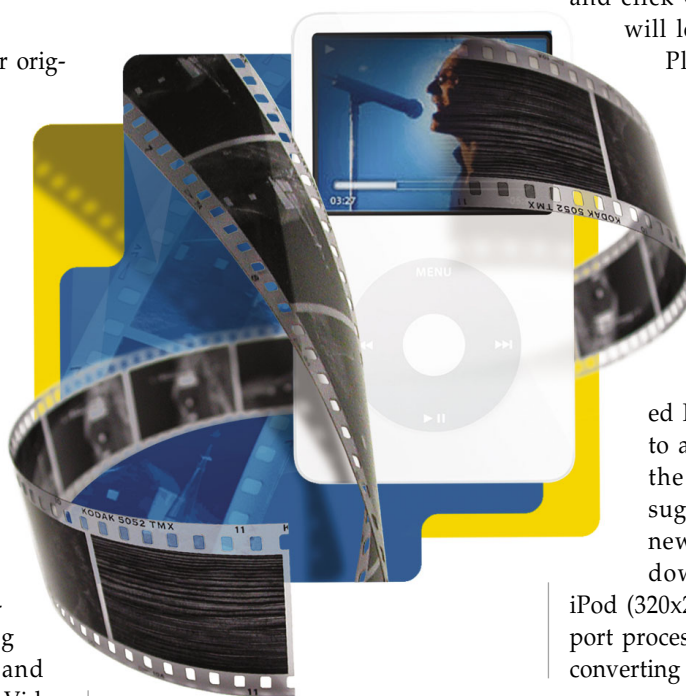
Video Formats

PMPs are capable of playing video, but it's up to you to get the video onto the device. Video files must be in one or more specific formats in order to be compatible with a PMP. The most popular formats are based on MPEG-4 (Moving Picture Experts Group), including DivX (Digital Video Express) and H.264/MPEG-4 AVC (Advanced Video Coding). Other popular formats include MPEG-1, MPEG-2, and WMV9 (Windows Media Video).

We will focus on the MPEG-4 format because most popular players support it. Don't worry if you need a different format; most of the software conversion applications we mention support a number of different formats.

Convert Video For The Video iPod

The video iPod can play MPEG-4 formats, including H.264. Because H.264 provides high-quality playback at reasonable compression rates, we will convert video to H.264 in our example. We will demonstrate three conversion methods, using three different software programs.



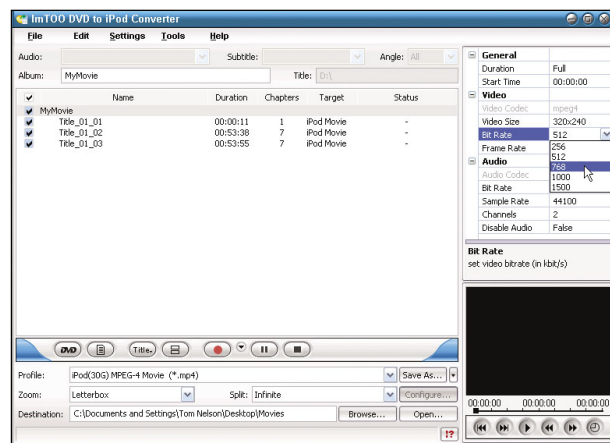
Method 1. For this method, you will need QuickTime Pro 7 (\$29.99; www.apple.com/quicktime). QuickTime Pro is the Swiss army knife of multimedia file conversion software. It can convert video from many different file formats and sources. QuickTime Pro is especially good for converting movies created on a digital camcorder in DV (digital video) or DV Pro formats and for converting movies created on VHS

tapes and converted to DV format. You can also use QuickTime Pro to convert most MPEG-4 formats, as well as many other popular video file formats.

In this example, we will convert the movie "His Girl Friday," which was released into public domain via the Creative Commons license, from MPEG-4 to H.264/AVC.

Launch QuickTime Pro and select File and then Open File. In the Open A File dialog box, navigate to where the movie file is stored. Select the movie and click Open. The selected movie will load into a new QuickTime Player window. The amount of time this takes depends on the size of the movie and the speed of your processor, so don't despair if the player seems unresponsive for a short time.

From the QuickTime Player's File menu, select Export. In the Save Exported File As dialog box, navigate to a target location for storing the exported file. Accept the suggested file name or type a new one. In the Export dropdown menu, select Movie To iPod (320x240) and click Save. The export process will begin. Exporting and converting can take a good deal of time,



Selecting video bit rate requires striking a balance between file size and video quality. The higher the bit rate, the better the quality, but the larger the file. Don't lean too heavily in favor of quality; remember, you will be viewing these movies on small, portable screens.

especially when converting from one of the DV formats.

Method 2. For this method, you will need SUPER v2006 (free; www.erightsoft.com). SUPER is a GUI (graphical user interface) for a series of open-source command line tools. While you can use the individual tools (ffmpeg, mencoder, mplayer, x264, and others) on their own, SUPER makes everything much simpler; not just the process itself, but by combining everything into a single download and installation.

Launch SUPER. From the Select The Output Container drop-down menu, select Apple – iPod. Confirm that the Select The Output Video Codec drop-down menu has H264/AVC selected; this is the default codec for Apple – iPod. If it is not selected, use the drop-down menu to select it. Confirm that the Select The Output Audio Codec drop-down menu has AAC selected. If not, use the drop-down menu to select it.

SUPER's default bit-rate setting for iPod conversions is 672Kbps (kilobits per second). (The bit rate is the number of bits, or amount of data, that can be transferred in a set amount of time.) This is a reasonable setting for converting high-quality source material, including source material that has a higher bit rate, such as MPEG-1 (VCDs [Video CDs]), MPEG-2 (DVDs), or HDTV source material. If the original video has a lower bit rate, as does most MPEG-4 material, you may want to lower the bit-rate setting to more closely match the source. Lowering the bit rate may lower the quality of the video, but it also creates smaller files, so it is usually an acceptable tradeoff. In addition, "upconverting" to a higher bit rate just results in a larger file, with no improvement in quality. In our example, we are converting an MPEG-4 file with a bit rate of 256Kbps, so we will select a bit rate of 288Kbps from the drop-down menu.

Right-click anywhere in the SUPER window and select Add Multimedia File. In the Select One Or Multiple File(s) To Play Or Encode window, navigate to the target video file. Click the file to select it and then click Open.

NEWGEAR

You've Been Framed, Wirelessly



The digital picture frame concept has been bandied about unsuccessfully by several companies, but Parrot might have the right idea with its new Photo Viewer frame (\$279; [www](http://www.parrot.biz)

[.parrot.biz](http://www.parrot.biz)). The frame comes in white-leaded oak or leather and a variety of colors to match your home décor, and it eschews clumsy USB image transfer for Bluetooth instead. Select the picture you want from a Bluetooth-enable phone, PC, or other device and send it to the frame, which resizes the image and automatically changes the photo to portrait or landscape orientation. It has an ARM 9 processor, 64MB RAM, 32MB memory, and a 2.7- x 2-inch display that supports a 320 x 234 resolution.

by Nathan Chandler

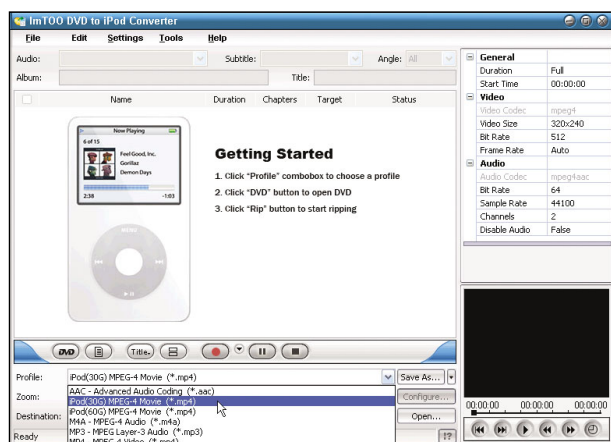
NEWGEAR

Customize Your Input

Gamers, CAD/CAMmers, video/photo/audio editors . . . anyone who spends as much time with hotkeys as the mouse—if not more—is painfully aware that there's no such thing as a perfect keyboard layout. Well, there wasn't, that is, until now. With Ergodex's D1 kit, you create your own keyboard (\$149.95; www.ergodex.com). Stick the removable keys (which move and feel like real keyboard keys) onto the RF-transmitting USB pad using their double-sided semi-adhesive, unofficially nicknamed "molecular Velcro." You can even label the keys with an included, well-thought-out sheet of gamer and power user decals, or use Ergodex's blank labels to assign keys as you like.

by Marty Sems





Use the Profile drop-down menu in ImTOO DVD to iPod Converter to select a video format that is compatible with your iPod.

Click Encode Now to start the encoding (conversion) process. SUPER will create a new video file in the same folder as the original. Its name will be the same as the original, with a file extension of .MP4 appended to it.

Method 3: You can convert any DVDs you legally own for use on a PMP, as long as the DVD is unencrypted. For this method, you will need ImTOO DVD to iPod Converter (\$29; www.imtoo.com).

Insert the DVD into your computer's DVD drive. Launch ImTOO DVD to iPod Converter. Click the DVD button, located just below the image of an iPod in the main window. Navigate to your DVD drive and click OK. The VOB (DVD Video Object) files that make up the DVD will display in the main window. In the Album field, type the name of the movie you will be converting. From the Profile drop-down menu, select the target output format. In this case, we will select iPod (30GB) MPEG-4 Movie (*.mp4).

From the Video, Bit Rate drop-down menu, select a bit rate to adjust the amount of compression that ImTOO DVD to iPod Converter will use. The lower the bit rate, the less space the movie will take up on your iPod, but the more degradation will occur. A bit rate setting of 768Kbps is usually a good tradeoff between quality and file size.

Click the Browse button and navigate to a target destination for storing

the converted movie. Click OK and start the conversion process by clicking the Rip button, which looks like the record button on a VCR.

Each VOB file will be converted to the MPEG-4 format your iPod expects. This means you will have multiple video files to copy to the iPod. The iPod uses the file's name for its menu system, so you may want to change

the nondescript file names that DVDs use to something more descriptive, such as `MyMovie_Part1.mp4`, `MyMovie_Part2.mp4`, etc.

Transfer Converted Video To Your iPod

For this process, you will need iTunes 6 (free; www.apple.com/itunes).

Launch iTunes. From the File menu, select Add File To Library. In the Add File To Library dialog box, navigate to the files you created in the conversion steps above. Select the file or files and then click Open. iTunes will add the files to the Video category of its library.

Connect your video iPod to your computer. After a short time, the iPod should appear in the iTunes Source pane, along with Library, Videos, Music Store, Podcasts, and your playlists.

In the Source pane, select Videos. Drag a video file from the main iTunes window to the iPod icon in the Source pane to copy the file to your iPod.

Convert Video For Other PMPs

You can use all of the conversion software mentioned above to convert videos to other formats. With a little tweaking here and there, you should be able to follow most of the same steps, regardless of the target format.

by Tom Nelson and Mary O'Connor

NEWS BRIEF

A More Mobile Web

Web surfing via cell phone is a bit like trying to squeeze into jeans 10 sizes too small—no matter how much you scream in frustration, there's just too much stuff to fit in that tiny space. AOL introduced a new feature for mobile phone surfing designed to adjust regular Web pages so they'll look normal on a teensy phone screen. The company also has plans to offer cell phone-based spoken driving directions through its MapQuest Navigator service. Dori Salcido, from AOL Corporate Communications, says, "Navigator puts an in-car navigation system in the palm of your hand," but adds that pedestrians will find the application equally useful. Salcido also says one of the biggest benefits of Navigator is that you can receive directions and talk on your phone simultaneously. AOL plans to announce a carrier for the approximately \$10 per month service later this year.

by Nathan Chandler

NEWS BRIEF

Survey Says . . .

Wonder what visitors to your Web site, blog, or company Intranet think about this or that? SurveySolutions Express (express.perseus.com) is a new free service that lets you do just that. And it's backed by Perseus, a company that provides survey services to corporation and the government.

by Calvin Clinchard

Mobile Games

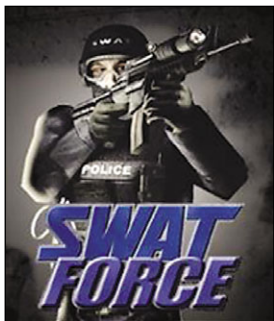
Fun For Road Warriors

by P. Bryan Edge-Salois

The availability and pricing of mobile games is generally dependent upon your service provider. Pricing typically starts around \$2.99 but may include additional connect-time charges for downloading a game. In addition, some providers may offer a lower monthly subscription fee or a one-time purchase price for unlimited play. Finally, not all games are available from all providers for all handsets, so check with your service provider to learn exactly what games are available for your particular handset.

SWAT Force

Vivendi Universal Games • www.vugames.com



The successful and critically-acclaimed SWAT PC Game finally emerges on the mobile platform. Controlling a two-man team, your job is to infiltrate and take down the bad guys in a series of objective-based missions.

Your team consists of a sharpshooter and an explosives expert. The sharpshooter is the brawn of the team—he carries the big

guns (including flash-bang grenades) and can force a suspect to surrender.

The explosives expert has a variety of skills to complement the sharpshooter. He can detect and defuse booby traps and bombs, hack computers to turn off cameras, and arrest suspects that have surrendered. He can also scout rooms behind closed doors with a fiber-optic camera and pick locks on doors. Finally, the explosive expert can also toss gas grenades to knock out suspects.

There are seven missions, each with a variety of objectives. Objectives include tasks such as rescuing hostages, defusing bombs, and (of course) arresting the bad guys. Your score is based on the number of objectives completed, and you're awarded a bonus for bringing in suspects alive. (Remember, your job is to serve and protect!)

SWAT Force does an excellent job of bringing the challenging, complex PC game to the mobile platform. The graphics are attractive, and the gameplay, though simplified, is very true to the spirit of the PC game. Replay value is a bit limited, and the game's fairly linear missions make for a short game. (You will likely complete it in less than two hours.) Regardless, SWAT Force provides a solid tactical gaming experience. It is highly recommended for fans of the genre.

Tower Bloxx

Digital Chocolate • www.digitalchocolate.com



The title of this game might suggest a Tetris or Breakout knockoff, but Tower Bloxx has more in common with the table top game Jenga than either of those two games.

Your basic job is to build skyscrapers, which are dropped block by block from a crane. As you build your skyscrapers, Tower Toons come to live in

them, even before the tower is completed. The problem is that high winds cause your crane to teeter back and forth, so it takes perfect timing to drop blocks onto each other and keep them aligned as your skyscraper gets taller and taller. If the balance of blocks is off by too much, the tower teeters, totters, and just might tumble!

There are two primary game modes in Tower Bloxx. The Quick Game mode lets you stack blocks as high and as long as you can. Make three mistakes, and the game ends.

The Build City mode requires more strategy and puzzle-solving, as you must construct skyscrapers in a 5 x 5 grid to create a city. Your objective is to house as many Tower Toons in your city as possible, and each skyscraper must be built according to certain parameters. For example, you can build blue 10-story towers anywhere, but you can only build larger 20-story towers next to blue towers. Your first towers must reach 10 blocks in height, but you'll eventually construct towers up to 40 blocks high.

Tower Bloxx is simple to play: It only requires timing, a single button on your phone, and some strategic thinking. It's also amazingly addictive, and the Build City mode offers plenty of replay value. Puzzle and strategy fans should definitely check this one out.

Ratchet & Clank: Goin' Mobile

Sony • mobile.sonypictures.com/games/ratchet



Ratchet and Clank have been digitized and dropped into your cell phone, and it's your job to get them out.

Goin' Mobile is a simple 2D platform game with 17 levels of running, jumping, blasting mayhem. Just like the Ratchet & Clank console games, there are plenty of weapons. The Defragmenter, Gravity Bombs, and (our favorite) the Boarzooka, which turns your enemies into boars, are just a few examples of your available arsenal. Throughout the game you'll find nuts and bolts—the game's currency—with which you can purchase weapon

upgrades. The coolest weapon of all is the RYNO (Rip You a New One), but you must play through the game twice and collect all the hidden titanium bolts to unlock it.

Ratchet also has a grappling hook for attaching to specially marked platforms, and Clank is equipped with chopper blades to give Ratchet some extra lift while jumping. An added Arena Mode provides a variety of interesting challenges with specific objectives, such as finishing a level within a certain time limit.

Ratchet & Clank is a popular platform franchise for the Sony PlayStation and PlayStation 2 consoles, and Sony has done a good job of bringing the dynamic duo to the mobile phone platform. The game is a bit short (around two hours) and repetitive, but still entertaining in short bursts. Bright, detailed 2D graphics and quality sound effects support the equally solid gameplay. This is a highly recommended (and award-winning) cell phone game.

Sudoku

Astraware • www.astraware.com



The popular number-puzzle game from Japan hits the mobile platform and provides yet another venue for feeding Sudoku addictions. Sudoku fans rejoice, and non-fans who want to know what all the hubbub is about should download this game and find out.

For those unfamiliar with Sudoku, it is a number-based logic game. A 9 x 9 grid is populated with numbers (1 through 9) occupying various squares. Your task is to fill in each row, column, or box with the numbers 1

through 9, but you may only use each number in a given row or column once.

Astraware's Sudoku provides tips and hints for beginners, so learning to play Sudoku is simple. Be careful, however—new players may find themselves losing large blocks of time to this game.

Sudoku boasts some excellent features, including six difficulty levels and a puzzle creator. The Puzzle Creator generates Sudoku puzzles and provides virtually infinite Sudoku puzzles; in addition, you can use the Puzzle Creator to input a puzzle from a magazine or newspaper for easy portability. You may also download free puzzles from Astraware at www.sudokuoftheday.com.

At nearly \$20, Sudoku is comparatively spendy for a mobile game. However, thanks to its virtually limitless replay value it arguably packs more bang for buck than other mobile games. It's a no-brainer download for Sudoku fans and well worth a look-see for interested puzzle gamers.

NEWS BRIEF

Rock Star Tech

In fits of marketing genius perhaps fueled by their respective beverages, Coca-Cola and Bacardi announced separate music-powered ad campaigns.

Coke unveiled its Stageside.tv Web site, where music fans can see exclusive, logo-strewn videos of favorite artists. Visitors can download footage from the site for free and distribute it through chat rooms and other social networking tools.

Bacardi created B Live Radio, an Internet radio station filled with popular DJ mixes available online or via cell phone.

by Nathan Chandler

NEWS BRIEF

Cell Phone Cash Cow

ATMs are so inconvenient. Thanks to PayPal, now you don't even need a computer to complete money transfers—all you need is your cell phone.

Do your friends in Hawaii need extra vacation funds? Send 'em a text message. PayPal Mobile lets users send money, buy goods, or even donate cash to charities, all through their handsets. The NBA, MTV, and 20th Century Fox are among those companies already accepting Mobile payments.

To use the service you have to activate your phone online. For security purposes, PayPal calls back on each transaction to confirm transactions.

by Nathan Chandler

The Well-Tuned PC

Crash Course Correction



Dave Methvin is chief technology officer of PC Pitstop, a free site that automatically diagnoses and fixes common PC problems. Contact Dave at dave@pctoday.com

Utility Of The Month: Event Viewer

You don't need to download this built-in utility. When things go wrong, Windows often makes a note of the problem in the Windows Event Log. Go to Control Panel, Administrative Tools, and then click Event Viewer.

Some events may not be errors. For example, Windows records when your network card gets an IP address. If you are having network problems, this might help debug them. Warnings related to the disk, however, should be carefully checked. Often the first sign of a disk failure is a message in the event log that a block could not be read or written.

Pick your favorite term: crash, freeze, hang, or lockup. Perhaps you use the genteel Microsoft phrase so popular in their support database: "stops responding." Whatever words you use, you're no doubt familiar with the frustrating situation. All of a sudden your PC stops doing what it's supposed to do. You're typing, but no letters are showing up on the screen. You're clicking, but nothing is happening. You're cursing at the cursor, but that doesn't help either. Before you throw the computer out a window, try these solutions. They will often restore sanity to the system, and they cause a lot less wear and tear.

Give It Some Time

Computers are blazingly fast these days, so it's unusual when something is so resource-intensive that it prevents anything else from happening. On my own system, if something takes more than a couple of seconds I'm already wondering what went wrong and contemplating corrective action. But patience is indeed a virtue when it comes to these temporary hang-ups. It's a lot riskier to stop a program while it's in the middle of doing something than to let it run its course for a few seconds.

Still there are a few situations where an application will

seem to hang up temporarily. One hang-up is not a problem at all; it's simply a user interface misunderstanding. When an application has multiple dialogs on the screen, you can usually only click the topmost dialog. If you try to click any of the other dialogs, they will either not respond at all or they may beep at you each time you click them. The solution is to first dismiss the active dialog. I have, however, seen situations where the active dialog is actually hiding under other inactive windows. To see if that's the problem, minimize all the windows that you can on the desktop. If you can't get to the minimize button because it's covered by a window that won't budge, right-click its taskbar button and select Minimize.

Another common but generally innocuous hang-up is when you access a CD or DVD drive. Windows is still primitive when it comes to accessing the drive, and doesn't like anything else to be happening while it tries to figure out whether any disc is in the drive. If Windows does find a disc, it usually wants to determine what kind of content is on the disc unless you've turned off AutoPlay. Because of this delay—and because of the security issues I talked about in a previous column (see "The Well-Tuned PC: I'm Done With AutoRun" in the February 2006 issue of *PC Today*)—I strongly recommend that you

turn off AutoPlay. The easiest way to do that is with Microsoft's free TweakUI utility (microsoft.com/windowsxp/downloads/powertoys/xppowertoys.mspx). In TweakUI, expand the My Computer section and then expand AutoPlay to change your settings.

Some copy-protected audio CDs or other damaged CDs can cause your drive to lock up to the point where it won't release the CD when you click the Eject button. In the process, your computer will also stop responding for tens of seconds while Windows tries in vain to figure out what's wrong with the CD. If that happens, try this: Shut down the computer, turn off the power, straighten out a paperclip, and insert it into the tiny hole at the front of the drive—you shouldn't need to go more than an inch. That will release the drive mechanism so that you can gently pull out the CD tray and remove the CD. Turn on the power and then press the Eject button again to close the tray.

Diagnosis & Cure

If an application still won't do your bidding, it's time to get serious. Bring up Task Manager by pressing CTRL-ALT-DEL or by right-clicking the taskbar and then selecting Task Manager. On the Processes tab, you can see all the programs running and determine whether any of them are using an especially large

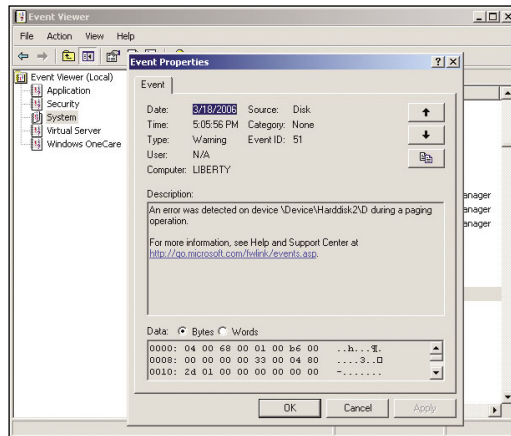
amount of memory or CPU time.

If you can't get to Task Manager, the system must really be locked up. You can usually force the system to power off by pressing the power button and holding it for four or five seconds. Remember though, that this will lose any unsaved work in the applications you were using. If you see that the disk

activity light is on, powering down the system is especially dicey because the abrupt power-off may corrupt parts of the drive. If the system is totally unresponsive though, there aren't many choices left.

The key to solving mystery lock-ups is to look for clues that lead to the cause. Does the problem happen consistently with the same application? Is it only with one particular file? Most likely it is related to that application or file, and you should check the vendor's Web site for solutions and updates. If you recently installed new hardware or software, try uninstalling and/or disconnecting it. Also check for spyware and viruses, since they can cause many strange system behaviors.

Persistent system-wide problems that happen when you do specific tasks are often related to bad hardware



Although many events recorded in Event Viewer are simply informational, event errors or warnings related to the disk may indicate impending disk failure.

drivers. Usually the best drivers you can use are the ones that have been through WHQL (Windows Hardware Quality Labs) testing. Windows Update offers WHQL-certified drivers, but they're not automatically downloaded like security patches. Instead you have to go directly to the Windows Update Web site and manually scan. If Windows Update doesn't offer a driver, the vendor of your system or hardware component usually will. In many cases, these drivers will not be WHQL-certified but they are worth a try. If you install a bad driver, you can recover in Device Manager by selecting the device and using the Rollback Driver option.

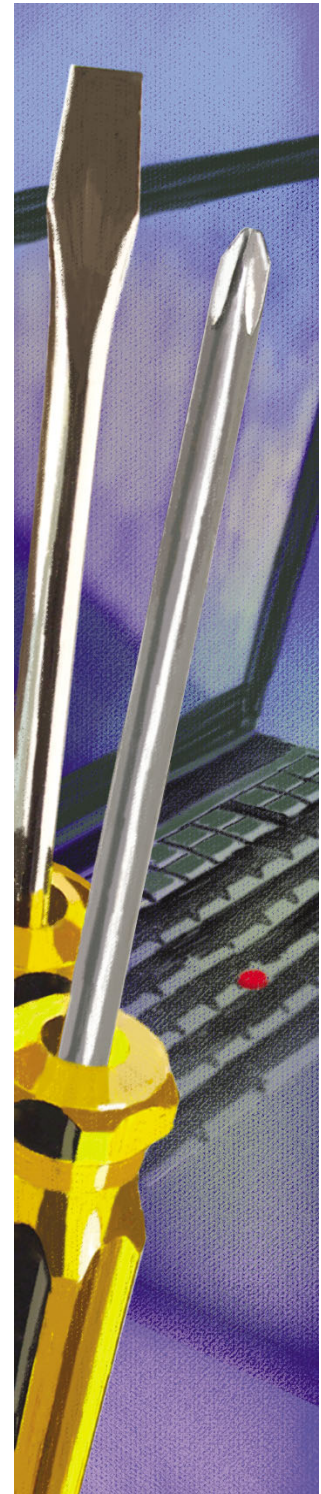
Other hardware problems tend to cause sporadic and random failures. This can be due to bad memory, a failing power supply, a failing disk drive, or system overheating.

Your system BIOS may have the tools needed to help diagnose problems with a power supply and overheating. Most BIOS setups offer a screen that shows the current output of the power supply, and many also have a CPU temperature and fan speed read-out. If your computer is more than a few months old, it may be choking in dust that is pre-

venting the system from cooling itself properly.

Be Prepared

It happens to everyone: Milliseconds after you realize the computer has stopped doing your bidding, you also realize that you haven't saved your work for a while. Worse yet, it was your only copy of a week-long effort, and it has to be finished by tomorrow. No matter what, computers will always be imperfect tools. Be prepared for them to fail by saving your work often. Regularly save your important data off the system, using a CD-R, network drive, or USB memory key. Get to know the Windows recovery tools such as System Restore, Driver Rollback, and Safe Mode before you need them, so you won't be stumbling around and likely to make the situation worse.



New Software

The Latest Utilities & Apps For Home & Office

by Cyndy Bates Finnie

Quick Access InfoBar

Free • Uniblue •

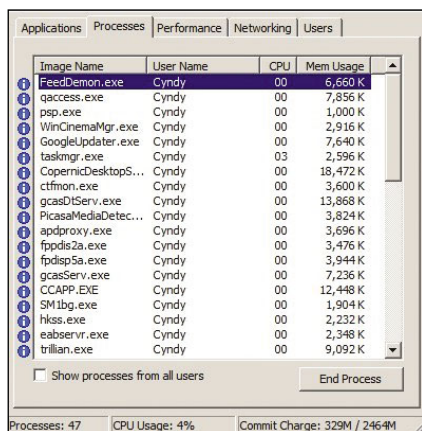
www.processlibrary.com/quickaccess

You remember the original purpose of Windows' old three-fingered salute, CTRL-ALT-DEL? We used to use it to reboot the system when all else failed. Windows has evolved beyond the need for that failsafe (or so Microsoft would have us believe), so now in Windows XP that key combination brings up Windows Task Manager. The Task Manager dis-

will display both its CPU and Memory usage. And if a program is not responding, you can highlight it in the list and close it by clicking the End Process button. Unfortunately this isn't always as easy as it sounds. Some of the "processes" listed are easy to understand, like WinWord.exe, FeedDemon.exe, GoogleUpdater.exe. Others are fairly incomprehensible, such as Svchost.exe, Ctfmon.exe, and Fpdsp5a.exe, among others. So when it comes to deciding to end a process, how are you supposed to make an intelligent decision?

Start by downloading the Access InfoBar. This Task Manager plug-in lets you find out more about a given process with the click of a button. After installation each process listed in the Task Manager will have a blue "i" next to it. This is a hotlink to an explanation of the process as described by ProcessLibrary.com. Each entry lists a description of the process, the application to which it's tied, and whether it is safe to end the process. (You can just ignore all the ads for WinTasks.) If you're trying to learn about multiple processes at once, the InfoBar is much quicker than searching ProcessLibrary.com or Googling each process individually.

If your computer starts slowing down, the Windows Task Manager is the first place you should look. If you're stumped with what you find there, ProcessLibrary.com and the Quick Access InfoBar can definitely help educate you about which processes are necessary and which are just eating up resources.



Get more information about a given process by clicking the blue "i" hotlink that Quick Access InfoBar adds to the Windows Task Manager.

plays information about programs and processes running on your computer. It also displays performance and usage information.

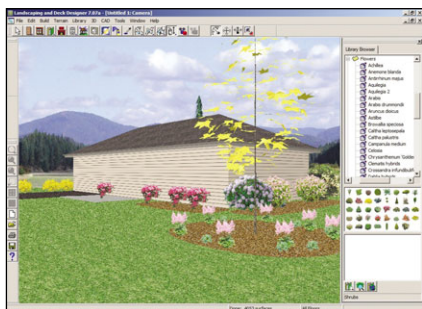
When your computer slows to a crawl, checking the Task Manager's Process tab is a good way to see what programs are taking up system resources. Each program or process that is currently running



Landscaping And Deck Designer

\$59 • Chief Architect
www.homedesignersoftware.com

There's always that one house on the street that is the envy of everyone in the neighborhood. You don't have to spend a mint to get help visualizing your own perfect outdoor space. Try the *Better Homes and Gardens Landscaping And Deck Designer* from Chief Architect instead. At \$59 it doesn't cost the farm and it lets you create and preview different design options in 3D so that you can find the one you like the best.



Improve your home's curbside appeal. Landscaping And Deck designer lets you visualize changes to your home's exterior.

Learning to use a design program can be tricky. This one however, includes quick start guides for creating landscapes, decks, and fences, as well as 15 training videos. You can start in a couple of different ways; for example, by sketching the outlines of your house or by importing a picture of your house or existing landscape. It then converts to a measured floor plan, where you can start adding plants or draw walls and railings for a new deck. The library contains over 1,200 plants, complete with height at maturity and zone ratings.

You can select deck options from stained wood to wrought iron railings, and select and position deck furniture. You can also add your own library options to fine tune your design.

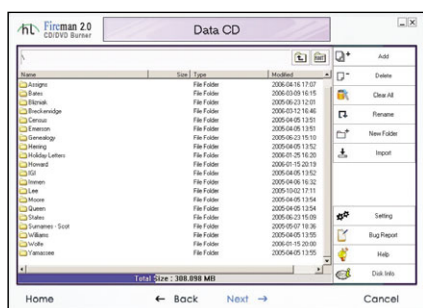
Landscape And Deck Designer also includes adding sidewalks, paths, ponds and other outdoor design elements.

Fireman CD/DVD Burner 2.0

\$39.99 • Honest Technology
www.honestech.com

Windows has a simple tool for burning CDs and DVDs. It's usable for burning the occasional CD, but anyone who shares CDs regularly will quickly run into its limitations. Burning CDs and DVDs is a drag-and-drop process, although unlike copying files from folder to folder in an Explorer window, it requires two steps. The first is to copy the files, the second is to initiate the burning. This can cause problems with CD-R and DVD-R media, to which you can only write data once.

Fireman CD/DVD Burner 2.0 is an easy-to-use CD burner. It supports drag-and-drop placement of files and allows you to create, continue, and complete multisession data disks. It makes the initiation of the CD writing process obvious with a big button labeled Burning. It manages data, video, and audio files, and also has a very simple disk label creator. In tests, Fireman failed to burn files with names longer than 64 characters. I discovered this while trying to copy a folder and its subfolders. The software informed me that of the hundreds of documents I was copying, three didn't comply with the limit. It rejected the whole job, without even copying the other documents that met the requirement. This may not be a problem for you, but it's hard to justify spending nearly \$40 on something Windows already does.



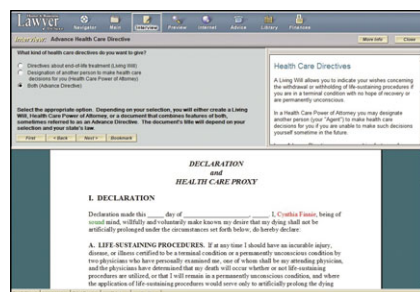
Fireman CD/DVD Burner 2.0 lets you quickly write data, audio and video files to CDs and DVDs.

Home & Business Lawyer 2006 Deluxe

\$39.99 • Broderbund
www.broderbund.com

We all get to that point in our lives, eventually: The one where you finally admit you're an adult and start thinking about legal documents, such as wills, powers of attorney, and advanced healthcare directives. These days, however, few of us have relationships with lawyers to start the process of generating those documents. Home & Business Lawyer can help. It includes over 1,200 legal documents for home and business use, including those previously mentioned, as well as rental agreements, bills of sale, complaint letters, and credit forms.

Home & Business Lawyer uses wizards to recommend a set of documents you should have. The wizard then



By answering simple questions, Home & Business Lawyer guides you through the process of filling out complicated legal forms.

guides you through the process of customizing the document for your particular circumstances. It also customizes documents according to your home state's laws. So for example, the program was aware of specific healthcare directives in my home state.

The program supports multiple users, so you and your spouse can have separate documents, as well as your parents, in-laws, and siblings. Home & Business Lawyer isn't a replacement for an in-person lawyer, but it's a great help in creating legal protection for yourself and your family.

Solve Wireless Internet Connection Problems



AS THE BUSINESS TRAVELER is inundated with airport terminals, coffee shops, and hotels offering public wireless Internet, you may find that locating a hotspot is the easy part. If you find yourself floundering while trying to connect, try these troubleshooting tips. **by Andrew Leibman**

GO HOTSPOT HOPPING

If several hotspots exist in the same general vicinity, you may need to specify the network to which you want to connect. To view the available wireless networks, right-click the Network Connections icon in the System Tray and click View Available Wireless Networks. Click Advanced to open the Wireless Network Connection Properties dialog box. Next, select the wireless network's SSID (Service Set Identifier) from the list of available networks that appears on the Wireless Networks tab.

Click the network you want to connect to and select the Allow Me To Connect To The Selected Wireless Network, Even Though It Is Not Secure checkbox. Next, click the Connect button at the bottom of the dialog box to continue. If you aren't sure which network you want to connect to or you don't see the network you're looking for, click the Advanced button. From this dialog box, you can rescan for the available wireless networks by clicking Refresh.

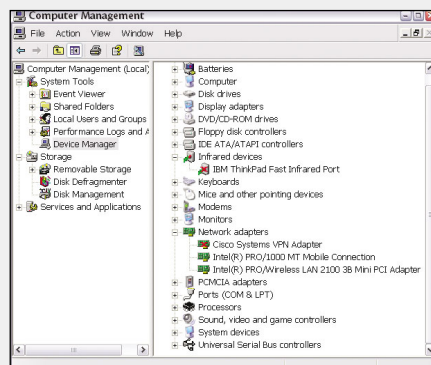
Windows 2000 users don't have a utility designed to detect and configure wireless networks. As a result you need to use the software that came with your wireless adapter or an application provided by the wireless IP. For example, if you have Intel's PRO/Wireless network adapter and the PROSet profile management software, you can double-click the Intel PROSet icon and select your wireless adapter from the left pane of the General tab. Click the Networks tab and click Scan. A list of Available Networks appears and displays the SSID names of the available networks. Select the network from the list and click Connect.

DOES YOUR OS HAVE THE RIGHT SUPPORT?

Make sure your operating system is up-to-date. Most wireless IPs only support a limited number of OSes or just specific versions of a particular OS. Depending on the wireless IP, some browsers are not supported and may not properly display the splash page, the Web page that lets you sign in to the hotspot's Internet service. Check with the wireless IP offering the hotspot for details on which browsers it recommends for best viewing.

CONNECTION CHECKLIST

Before trying to connect to a hotspot, make sure you have the correct hardware. Most newer notebooks come with integrated wireless adapters. If you have an Intel Centrino notebook, then you have an 802.11b or 802.11g wireless adapter and should have little trouble connecting to most



public hotspots. If you're not sure, check your device for an 802.11-compliant WLAN (wireless local-area network) adapter.

Some wireless-capable devices state the 802.11 compliance on the bottom or back of the device. You can also check whether you have a wireless adapter by consulting the Device Manager. If you're using Windows XP, click Start, right-click My Computer, and select Manage. Click Device Manager from the left pane to see a list of the devices installed on your system. Win2000 users can right-click My Computer, click Properties, and then select the Device Manager tab. Look for the Network Adapters item. Click the plus sign in front of the network adapters to expand a list of your installed network devices. You should see a wireless adapter, but if you don't and your notebook has a PC Card slot, then you can add wireless Internet capabilities with a PC Card or a mini-PCI WLAN card.

MAKE SURE YOUR ADAPTER CAN "TALK" WITH THE HOTSPOT

The next step in troubleshooting your connection is to make sure your wireless adapter can "talk" to the hotspot. To use a particular wireless Internet connection, your hardware must be compliant with the hotspot's hardware. For example, if your notebook has an 802.11b wireless adapter, you can connect to other 802.11b or backward-compatible 802.11g hotspots. The same notebook can't connect to an 802.11a hotspot, however, because that specification isn't backward-compatible with 802.11b/g devices.

To get your WLAN adapter to communicate with the hotspot hardware, your adapter must be turned on. The Wireless Network Connections icon in your System Tray will appear to be communicating if the adapter is working properly. If an X appears over your wireless adapter icon in the System Tray, then the device isn't enabled. Right-click the Network Connections System Tray icon, click Open Network Connections, and double-click Wireless Network Connection to enable your device's WLAN adapter. If there isn't a Network Connections icon in the System Tray, WinXP users can access the Network Connections by clicking Start, Control Panel, and double-clicking Network Connections. If you're using Win2000, click Start, select Settings, and then click Control Panel. Double-click Network And Dialup Connections, right-click your wireless network connection, and select Enable.

WinXP users may see a pop-up balloon stating that no wireless networks are available. After about a minute, another pop-up should appear stating that one or more wireless networks are available. Click the balloon to see the Wireless Network Connection dialog box and a list of available wireless networks as SSIDs. The SSID is a name that identifies a specific network.

JUST LAUNCH A BROWSER

If your wireless adapter is communicating with the hotspot, then often all you need to do is launch a Web browser. Sometimes you'll need to sign in on the wireless IP's login page. You may also need a valid credit card, depending on whether the wireless IP charges a fee for its service.

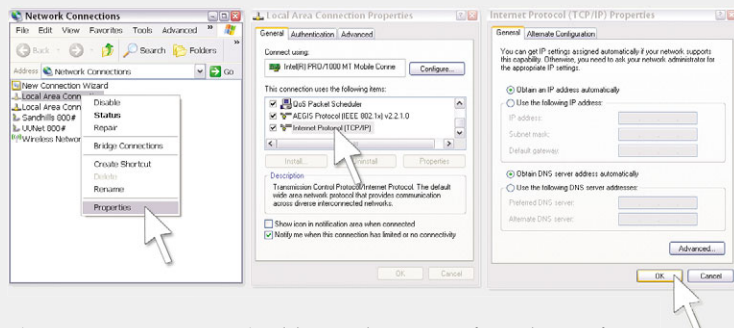
CHECK YOUR DRIVERS

From the Device Manager, you can check the status of your WLAN drivers to make sure the device is working properly. If the Device Manager shows a yellow circle and an exclamation point next to your wireless adapter, then your wireless adapter may not be properly installed. Right-click the adapter in question, select Properties, and look at the Device Status box on the General tab to see that the adapter is working properly. If necessary, select the Driver tab in the Properties dialog box to access controls that let you uninstall or update the driver. If you see a red X by your wireless adapter, the device is either disabled or your system can't recognize it. Right-click the adapter and select Enable. If this doesn't eliminate the red X, then you may need to replace your wireless adapter.



HOW TO ENSURE A PROPER CONFIGURATION

Oftentimes, you can encounter connection problems simply because your notebook isn't properly configured. You need to setup your notebook to automatically obtain an IP (Internet Protocol) address and DNS



(Domain Name System) address. These sets of numbers refer to the address of a computer on a network and the system for translating IP addresses into domain names. Your wireless device must be able to determine both addresses in order to connect to a hotspot.

If you're using WinXP, you can configure your device by right-clicking the Network Connections icon from the System Tray and then clicking Open Network Connections. Right-click Local Area Connection and select Properties. Scroll to and select Internet Protocol (TCP/IP) and then click Properties. Open the General tab and select the Obtain An IP Address Automatically and Obtain DNS Server Address Automatically radio buttons. Click OK when you're done.

Win2000 users can click Start, select Settings, and click Network And Dialup Connections. Next, right-click the wireless LAN connection, click Properties, scroll to and select Internet Protocol (TCP/IP), and then click Properties. On the General tab, select the Obtain An IP Address Automatically and Obtain DNS Server Address Automatically radio buttons. Click OK to close the dialog box.

Can't Open That File



YOU'VE BEEN ON THE ROAD all week working on a major business deal. It's about to all come together, but you're waiting on the final proposal. When you check your email, you see that it has finally arrived. And as thoughts of your impending promotion swim in your head, you realize that they've sent you a WordPerfect file. The problem? You don't have WordPerfect installed on your notebook, and when you try to open the file, all you get is gibberish.

Before you throw anything in frustration, stop, take a deep breath, and consider downloading a file viewer to make your troubles go away. Although you may have limited access to

the file's contents, the information you need will be readable with minimum effort.

For a variety of quick fixes, you need look no further than Microsoft's download Web site (www.microsoft.com/downloads). The following describes two viewers that you will most likely need and step-by-step directions on how to download and use each of them.

by Joy Martin

WORD VIEWER 2003

For viewing nearly any type of word processing document, you'll want to download Word Viewer 2003. This nearly 12MB download will allow you to view, print, and copy documents saved in any number of formats, including certain versions of Word, rich text format, WordPerfect, Works, and XML, and you don't need to have Word previously installed for it to work. You won't, however, be able to edit, save, or create documents with this program. The file will take between two minutes (T1 connection) and 29 minutes (56Kbps [kilobits per second] dial-up connection) to download.

Using the Search option on the Download Center

home page, type **Word Viewer 2003** in the text box and click Go. From the Results page, click the Word Viewer 2003 link, which will display a summary page with an overview of functions and compatible file formats and complete instructions on downloading and using the viewer. Once you've decided that this is the viewer you need, click the Download button near the top of the page to get started.

Although the downloading process should automatically begin, you can follow the directions on the

next page if there is a delay. To install and launch the viewer immediately, click Open in the installation

window. After reviewing the EULA (End User License Agreement), click the I Accept The Terms In The License Agreement checkbox and click Next to launch the Setup window.

You will be given the choice to install the program in the default location (in our case, C:\PROGRAM FILES\MICROSOFT OFFICE) or click Browse to use the Select A Destination Folder option. If you would like to change the destination, select the desired folder and click OK to continue the installation process. Because we wanted to save to the default location, we clicked the Install button to continue. When the installation is complete, click OK.



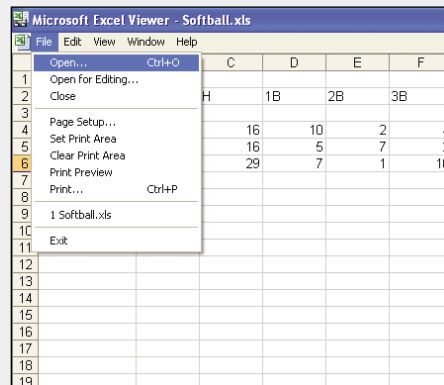
From Microsoft's Download Center home page, you can search for viewers and converters by searching the categories listed on the left of the home page or using the Search option. You can also see what other people are downloading by checking out the Popular Downloads list.

To test out the Word Viewer 2003 utility, we created a Word-Perfect file and saved it on a computer that didn't have Word-Perfect or Word installed. To retrieve our file, we opened the Windows Start menu, clicked Programs, and selected Microsoft Office Word Viewer 2003 from the resulting menu. The program will launch directly to an Open display window where you can select the file you need to open. In order for our file to appear we selected All Files (*.*) from the Files Of Type drop-down menu. We navigated our way through the Desktop folders and found the file, which was named WP12test.wpd. We clicked the corresponding file to highlight it and then clicked Open to access the file's contents.

We were able to access the file in question, but as stated before, we were only able to view, print, and copy the document. In order to have more flexibility with the document, we used the key combination CTRL-A to highlight all of the text. We then copied it onto the Clipboard by pressing CTRL-C and pasted the text into a Word-Pad document using CTRL-V. We were then free to save and edit the resulting document.

EXCEL VIEWER 2003

If you need to check out a spreadsheet but don't have Excel on your notebook, Excel Viewer 2003 will be able to assist. The almost 10MB download will enable you to open Excel 97/2000/2002/2003 spreadsheets and workbooks. Although you won't be able to edit, save, or create files, you will be able to open, view, and print. In addition, you can copy and paste the data in another program for editing. This file will take between 1.5 minutes (T1 connection) and 25 minutes (56Kbps [kilobits per second] dial-up connection) to download.



Because of the limited access granted by a viewer, the File drop-down menu has fewer options than in a full version of Excel.

To locate the file, type **Excel Viewer 2003** in the Search text box on the Download Center home page and click Go. Click the Excel Viewer 2003 link to view the summary page. Similar to the Word Viewer 2003 page, you'll see an overview and complete download and usage instructions. To download the viewer, click the Download button near the top of the page.

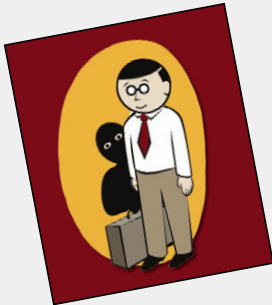
The download process for Excel Viewer 2003 is just like Word Viewer 2003. Click Open to install the program immediately. After reviewing and accepting the EULA, click Next to begin Setup. Again, we chose to install the program in the default location, so we clicked Install.

To start Excel Viewer 2003, click the Windows Start menu, click Programs and then Microsoft Office Excel Viewer 2003. Click File and select Open from the drop-down menu to open the correct file. Once we located the file, we clicked the file name and then clicked Open. Although you will be unable to do anything but read the data, you can copy and paste the information into another program if necessary.

BEYOND THE BASICS

If you find yourself in need of a viewer that we didn't cover here, you can use the Search For A Download option on Microsoft's Download Center home page to search by Keyword or Product/Technology. You can also browse the Download Categories list that runs along the left side of the page. And for more access to your files, consider searching for a file converter that will actually open the file in question in a format you can access completely. Once you know about viewers and converters, no matter what type of file is thrown your way, chances are there's a way to open it that is just a download away.

Password Management



It's generally understood that passwords should be at least six characters in length (the longer, the better) and use a meaningless combination of letters, numbers, and symbols. And of course, everyone knows it's best to keep passwords private. But with so many online services requiring usernames and passwords, memorizing all of them is a daunting task, and decorating your monitor with passwords on sticky notes is a no-no. A better way to manage passwords, protect them, and reduce frustration is to use password management software, devices, and services. In this article we'll fill you in on password management solutions.

by Carmen Carmack

Software To Manage Passwords

There are a variety of free and commercial applications you can use to manage password information and generate hard-to-guess passwords. Generally the applications store your password information in encrypted form, so someone cannot read the information if he locates it on your computer. Some applications also let you select additional files and folders to encrypt, and most can store information for multiple user accounts. Another handy feature, especially if you travel or use multiple computers, is the ability to manage passwords with a portable USB drive.

Any Password (www.anypassword.com) is a password management application that's for noncommercial and nonprofit use. It includes a password generator that creates hard-to-guess passwords, a search feature to help you find your saved password information, and encryption capabilities. Multiple persons can use the product to store password information, and each person can have multiple data files. For commercial use, consider Any Password Pro (\$24.95), which offers additional features such as the ability to run the software from a USB drive.

Password Safe (sourceforge.net/projects/passwordsafe) was originally developed by security firm Counterpane Internet Security (www.counterpane.com). Now an open-source software program available for free, Password Safe can also operate from computers and USB drives. The product manages, encrypts, and stores password information, and it works on Windows 95/98/NT/2000/XP systems.

If you want a commercially developed product, you can try Norton Password Manager 2004 (\$39.95; www.symantec.com/passwordmanager) for Win98/Me/2000/XP systems. The software uses encryption to protect information such as passwords, telephone numbers, and credit card numbers. It can automatically supply password information for Web sites and software applications, and the User Profile Setup Wizard creates and stores multiple profiles for people that share a computer. A free trial version is available for download from the Symantec Web site.

If you use multiple computers, such as a laptop on the road and a desktop at the office, RoboForm Portable (www.roboform.com) is worth a look. The product, which also goes by the name Pass2Go, transforms a USB drive into a portable password manager. You store your software, passwords, and Web form information on the drive, so when you need to take your passwords with you, you can plug the drive into the USB port of another computer and access your information. The trial version expires in 30 days, after which you can purchase the full version for \$39.95. The full version includes the standard RoboForm software.

The screenshot displays the FindMyHost.com website, which is a platform for finding web hosting services. The page features a search bar at the top with filters for 'Adult', 'Budget', 'Co-location', 'E-commerce', 'Managed', 'Free Hosting', 'Reseller', 'VPS', and 'WindowsNT'. Below the search bar, there are several promotional banners for different hosting providers, including iPower (\$49.99), Bluehost (100GB Traffic), and StartLogic (500MB Web Space). The page also lists various hosting features such as 'Dedicated Hosting', 'E-commerce Hosting', 'Frontpage Hosting', and 'Domain Registration'. A 'CLICK HERE' button is visible in the bottom right corner.

Security expert Bruce Schneier of Counterpane Security developed the Password Safe software (no relation to the PasswordSafe Web site). The program is now freely distributed from SourceForge, an open-source software development Web site.

Fingerprint Readers

A fingerprint reader is a device that prevents other people from using your computer. The reader has a small, built-in sensor that works with companion software to register fingerprints. When you want to use your computer, place your fingertip in the sensor area. If the reader recognizes the fingerprint, the device grants you access to the system. The software included with most devices is also capable of recording your password information. This means you can place your fingertip in the scanner when a program or site prompts you for a username and password that you registered.

Microsoft (www.microsoft.com) offers a Fingerprint Reader (retails for \$30 to \$60) device that you can plug in to your PC's USB port. The included software helps you set up the device to scan and register your fingerprint. After registering your fingerprint, you can touch your finger to the device's sensor when a site or program prompts you for password information. The first time you do so, the software displays a window for you to type your password information. The Fingerprint Reader stores the data, and the next time you visit that Web site, you can log on by touching your finger to the device. The Fingerprint Reader is compatible with WinXP, and you also can use it to quickly switch between WinXP user accounts.

Microsoft offers additional products that feature integrated fingerprint readers. These include an optical mouse marketed as the Wireless IntelliMouse Explorer With Fingerprint Reader (retails for about \$47) and a wireless mouse and keyboard combination called the Optical Desktop With Fingerprint Reader (retails for \$40 to \$80). Both devices are compatible with WinXP.

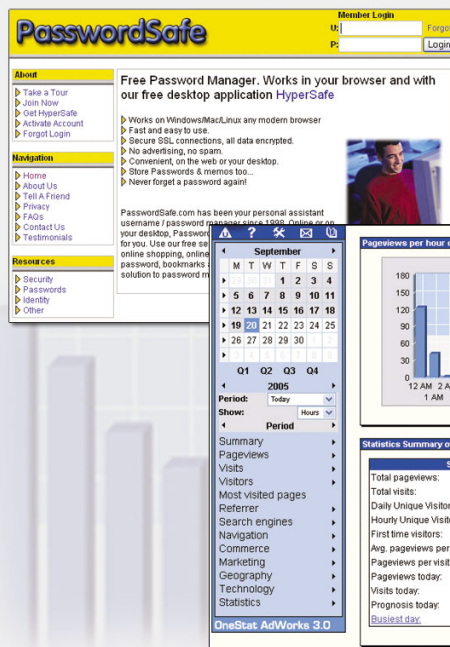
The APC Touch Biometric Mouse Password Manager (www.apc.com) is similar to Microsoft's products. Priced at \$59.99 the device is a corded optical mouse that connects to your computer's USB port and features a built-in biometric sensor. The APC device is compatible with Win98/Me/2000/XP systems.

Web-Based Services

If you like the idea of accessing your password information from any computer, a Web-based service might be what you're looking for. PasswordSafe.com (www.passwordsafe.com) has been around since 1998. The free service lets you store your passwords online and provides an optional utility that lets you also store the information on your computer.

To use PasswordSafe you need to first create an account and activate it via an email confirmation. After confirming and logging in to your account, you can add password information for Web sites, email accounts, and other items. Doing this requires the use of an encrypted connection to the Web site to prevent hackers from intercepting your password information.

In conjunction with PasswordSafe, you can download the HyperSafe utility to store password information on your computer. Neither PasswordSafe nor HyperSafe automatically completes usernames and passwords, but you can download another tool called PopSafe for this purpose. There's also a password generator utility on the Web that lets you define different password parameters.



You can create a free account and store your passwords on the PasswordSafe Web site. Using this site you can look up the information from any computer that has Internet access.

Protect Passwords

Your password information is important. Of course, you can create and reuse a simple password for access to nonsensitive Web sites. However when you are logging in to your online banking or brokerage account, you would be wise to use a unique password that's hard to guess, and it's smart to change such sensitive passwords on a regular basis.

Security experts have been discussing the demise of passwords, due to the ease in which they can be compromised. In the future we will likely see alternative methods for protecting and verifying our online identities. Nevertheless, to make your life easier and a bit more secure for now, try one of the password management solutions we discussed.

Symantec pcAnywhere 11.5 Troubleshooting



THOUSANDS OF PEOPLE USE SYMANTEC'S PCANYWHERE 11.5 (\$199.99; www.symantec.com) to use one computer to remotely access another when they're on the road. The software's interface grants access to every aspect of the remotely-accessed PC (called the host), letting you see the screen and use the keyboard and mouse as if you were sitting in front of a computer that is physically located miles away.

pcAnywhere is a powerful application, but like all software, it doesn't always work the way you'd like it to. We tested the program extensively and also consulted with Mike Baldwin, senior product manager at Symantec, to find out ways to fix the most common issues users face when using pcAnywhere 11.5.

by Tracy Baker

CONNECTION ISSUES

In our experience setting up the software on multiple PCs and getting them to talk to one another is no problem at all in a controlled environment, but improperly configured Internet and networking hardware often causes problems that bewilder beginners.

Most home and small-business networks use routers to direct network traffic through a range of different ports. Two of these ports, 5631 and 5632, are essential for pcAnywhere's operation. If these ports are closed, the software won't be able to establish a connection with another computer. Fortunately, most routers have a Web-based configuration interface that lets users open or close various ports, although the procedure varies. "If you go to the support pages of most of the major router vendors, they'll actually have a page specifying pcAnywhere by name on how to set up the router to allow correct performance," says Baldwin. Find out how your router's interface works and open ports 5631 and 5632.

Firewall software and hardware, which sits between the Internet connection and the PC to examine and potentially block incoming and outgoing data, also has the potential to cause problems. The good news is that firewalls have exception lists where users can add the name of a program or the number of a port that is specifically allowed to carry traffic, lifting any restrictions the firewall may impose. For example, if you use Windows XP's integrated firewall software, open the Start menu, click Control Panel, click Switch To Classic View (if necessary), and double-click Windows Firewall. Select the Exceptions tab and click the Add Port button. Type pcAnywhere in the Name field, type 5631 in the Port number field, make sure the TCP radio button is selected, and click OK. Click Add Port again, type pcAnywhere 2 in the Name field, type 5632 in the Port Number field, select the TCP radio button, and click OK. You may need to reboot your computer after

changing firewall settings before they are effective.

pcAnywhere relies on knowing the IP addresses of both computers before establishing a connection. The IP address is a unique number assigned to each device on a network, including the Internet, but while they are all different, they don't necessarily remain static. "This is another area of frustration sometimes because even a public IP from the ISP can certainly be changed," says Baldwin. "They typically don't change that often, but they certainly can change without notice, and your private IPs behind the router may change all the time."

As far as the private IP address is concerned, you can have the router permanently assign one to any computer you plan to use pcAnywhere with, and it will stick as long as the computer remains on that network. The bigger problem when you're on the road is the public IP your ISP uses to identify your account. This can change without warning, and if it happens

when you are not at the host computer to adjust the address, you won't be able to establish a remote connection.

The best way around this problem is to subscribe to a dynamic DNS (domain name server) service, which assigns your account a permanent name, such as youraccount.dnsservice.com, and then automatically retrieves your current IP address from the ISP to associate with that name.

With that established all you need to tell pcAnywhere is that the IP address you are connecting to is youraccount.dnsservice.com, and the public DNS service does the rest of the work; you never need to adjust any IP address settings manually again.

All boxed versions of pcAnywhere 11.5 come with a voucher good for a 90-day subscription to DynIP (\$24.95 per year and up; www.dynip.com).

There are also free dynamic DNS services available from companies such as No-IP.com (www.no-ip.com), which also offers more advanced fee-based services.

PERFORMANCE ISSUES

pcAnywhere doesn't do you any good if it works so slowly as to be unusable. Using the software over a network or broadband Internet connection usually doesn't cause any problems, but when you're on the road there's always a chance that you need to

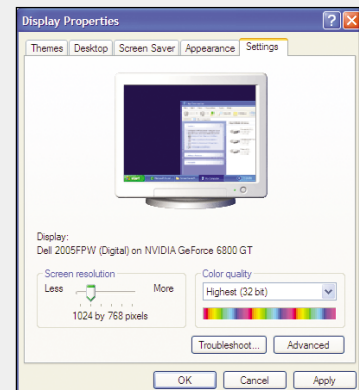
slowly the pcAnywhere interface screen displays updates.

"The first thing I would do is to reduce the Desktop resolution because that changes your starting point," says Baldwin. The resolution setting establishes the amount of data you can display on your

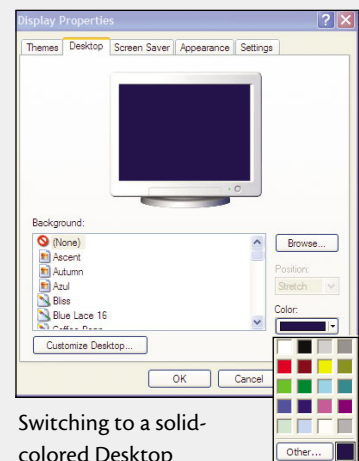
To reduce the resolution, right-click an empty area of your Desktop, click Properties, and select the Settings tab. Use the Resolution slider bar to select a reduced setting, click Apply, and reboot your computer.

Reducing resolution is the single most important step in accommodating a pcAnywhere dial-up session, but reducing the complexity of what's on the screen also is important.

"Many people like to use photos as their wallpaper rather than a static, solid color," says Baldwin, "and that dramatically increases the amount of information that is passed." To switch to a solid-colored background, right-click the Desktop, click Properties, click Desktop, and choose None in the Background field. Then use the Color menu to select a solid color.



Lower the resolution of the host PC to dramatically improve pcAnywhere's performance.



Switching to a solid-colored Desktop reduces the amount of data the software must transmit.

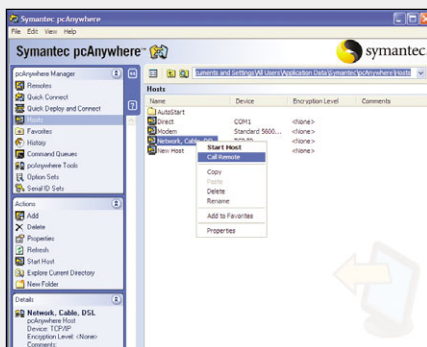
... it won't work well unless it is completely optimized.

remotely access a home or work PC through a dial-up connection. The software should still work on this extremely slow type of connection, but it won't work well unless it is completely optimized.

The main thing to worry about in this case is the host computer, which sends all of the data to another computer when you access it remotely. pcAnywhere works by constantly downloading a picture of the host computer's Windows Desktop directly to another computer. The larger and more detailed this picture is, the more data there is to download and the more

monitor at once, and a resolution of 1,600 x 1,200 requires four times as much bandwidth to transmit than a screen that runs at 800 x 600 resolution. Before going on a trip where you know you'll need to remotely access a computer through a dial-up connection, use Windows to reduce the resolution from high settings such as 1,600 x 1,200 to more bandwidth-friendly settings such as 1,024 x 768 or 800 x 600. Avoid 640 x 480 resolution because although far less data is displayed at that setting that the computer becomes almost unusable.

DON'T FORGET THE CALLBACK



Have someone use the host to initiate a connection to the remote PC when the host is within a restrictive network.

Baldwin left us with one final tip that can help people behind restrictive firewalls and other network hardware really get out of a jam: Use the software's Call Remote feature. This lets the host computer that you want to control make the connection when the other computer can't get in. (Firewalls are generally much less restrictive

about outgoing connections than they are about incoming connections.)

This comes in handy when you need an expert to troubleshoot your computer remotely, but he can't connect because you don't have the authority to open the proper ports.

It's also great when you need to access a work computer and have

someone at the office who can initiate the connection for you.

Just make sure the other computer is ready, click Hosts, right-click the type of connection you want to establish, and click Call Remote. The only downside is that now you have no excuse to ever be away from your computer.

The Delayed Traveler

by Marty Sems

Admit It, This Is The First Page You Turned To

Convert Me

If you're going abroad, you may know that you'll probably need an adapter to plug in your laptop and electric razor. Kensington offers one it claims is compatible with outlets in 150 countries for \$29.99. What's more, it comes with a fuse for surge protection (plus a spare), and even a USB port for recharging cell phones, iPods, and the like. Look for item 33346, Travel Plug Adapter with USB Charger, at us.kensington.com.



You Booked Me *Where?*

You can make or break a business trip with your choice of hotel. Here are the best inns near some technology centers as rated by business travelers on TravelPost.com.

Austin, Texas - Drury Inn Austin Highland Mall

www.druryhotels.com/properties/austinhighlandmall.cfm

Boulder, Colo. - Best Western Boulder Inn

www.boulderinn.com

Dallas, Texas - Crowne Plaza Dallas Market Center

www.ichotelsgroup.com/h/d/cp/1/en/home

New York, N.Y. - Marriott Marquis Times Square

www.nymarriottmarquis.com

San Jose, Calif. - Doubletree Hotel San Jose

www.dtsj.com

San Francisco, Calif. - Marriott San Francisco

www.marriott.com/property/propertytype/sfodt

Seattle, Wash. - Seattle Marriott Waterfront

www.seattlewaterfrontmarriott.com

TravelPost.com



Flyin' Hawaiian

If you're shopping for the airline with the best reliability record, you really need to fly Hawaiian (www.hawaiianair.com). In February, Hawaiian Airlines charted the best percentage of on-time arrivals at 94.3%. The airline also posted the fewest canceled flights, at just 0.2%. Perhaps when they're flying to Hawaii, flight crews are in a bigger hurry to get there.

SOURCE: U.S. DEPARTMENT OF TRANSPORTATION BUREAU OF TRANSPORTATION STATISTICS.



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The World's Smallest RF Remote/Laser Pointer Combination

This sleek remote helps you navigate through your presentations effortlessly. You'll never forget this presenter when traveling either, as it discretely stores in your laptop's PC card slot.

Features:

- USB Plug and Play Convenience - No software to load
- Offers a 75 feet omni-directional RF range for wider coverage
- Allows you to advance or repeat slides with Forward, Reverse, Black, White and Escape screen controls
- Compatible with PC & Mac
- Integrated laser pointer
- Stores easily in your computer's PC Card slot



Part # MEAP01



Store the card in your
PC Card slot when not in use!



USB Dongle is stored directly in
the card when not being used!



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